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319 -001 thru -002

Ritter® by MIDMARK

Power Examination Table

Service and Parts Manual

Serial Number Prefix:
ER

319 -001 thru -002

FOR USE BY MIDMARK
TRAINED TECHNICIANS ONLY

SF-1453

Part No. 003-0730-00 Rev. J (1/01/04)

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IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this power examination table is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this table.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this table.

Warnings

Throughout this manual are Note, Caution, and Danger paragraphs that call attention to particular procedures. These items are used as follows:

NOTE
A note is used to amplify an operating procedure, practice or condition.

CAUTION
A CAUTION is used for an operating procedure, practice, or condition which, if not correctly followed, could result in equipment damage.

DANGER
A DANGER is used for an operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed on the back cover of the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 319 Power Examination Table unsafe for operation.

- In the event of a malfunction, do not attempt to operate the table until necessary repairs have been made.
- Do not attempt to disassemble table, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark's authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for 319 Power Examination Table. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

B. Manual Use When Table Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on table (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

1.3 Description Of 319 Power Examination Table

A. General Description (See Figure 1-1).

The 319 Power Examination Table is an examination table designed specifically for performing general medical examinations and procedures.

The major serviceable components of the table are the motor pump, up functions relief valve (675 PSI), down functions relief valve (400 PSI), up functions shuttle valve, down functions shuttle valve, anti-cavitation solenoid valve, capacitors, PC control board, back cylinder, foot cylinder, tilt cylinder, base cylinder, base slide assembly, chain assembly, pan safety limit switch, base down limit switch, hand inlet PC board, hand control panel, foot inlet PC board, headrest assembly, and foot control which includes foot pedal foot switches, foot switches, and a foot control interface board.

B. Theory of Operation (See Figure 5-1 for electrical schematic / wiring diagram and Figure 5-2, Sheets 1 and 2, for hydraulic flow diagram.)

115 VAC is supplied directly to the PC control board.

When the operator selects one of the four up functions (BACK UP, BASE UP, FOOT UP, TILT UP), either with the hand control or optional foot control, the PC control board starts the motor pump pumping, energizes the anti-cavitation solenoid valve, causing it to open, and energizes the selected cylinder solenoid valve, causing it to open (when any function is selected, the PC control board delays 1/10 of a second before energizing the corresponding cylinder solenoid valve. This allows oil pressure to build first, so table top will not drift downward slightly before starting to rise). When the motor pump starts pumping, suction is created by the rotating pump gears, which forces oil to flow around the reservoir check valve and into the pump gears. The pump gears pressurize the oil which flows to the up function shuttle valve. The check ball and shuttle in the up function shuttle valve are pushed to the open position by the oil, allowing oil to flow thru the shuttle valve by flowing around the check ball (with the shuttle in the open position, oil is prevented from flowing through the reservoir ports and returning to the reservoir). The oil then flows through the open cylinder solenoid valve at the base of the selected cylinder, extending the cylinder rod. When the cylinder rod extends, oil is forced out of the rod end of the cylinder, through the open anti-cavitation solenoid valve and to the down function shuttle valve. The check ball and the shuttle in the down function shuttle valve are pushed to the closed position by the oil, which prevents oil from flowing

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SECTION I
GENERAL INFORMATION

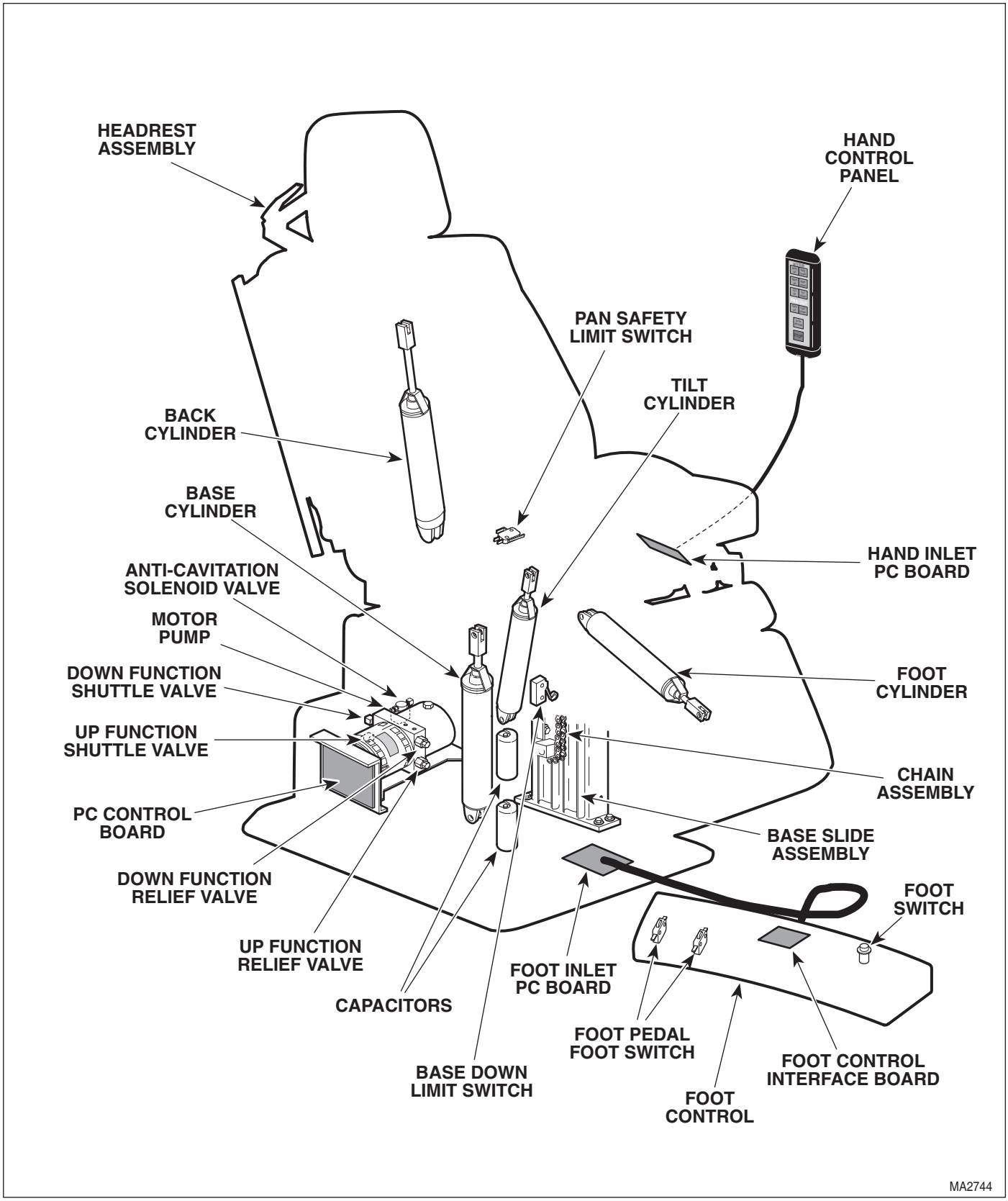

Figure 1-1. Major Components

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through the shuttle valve and into the motor pump, but allows the oil to flow through the newly uncovered reservoir ports into the reservoir. When the cylinder rod reaches the end of its travel, the up function relief valve opens when the pressure reaches 650 - 700 PSI (44.8 - 48.3 BARS) and allows the oil to return to the reservoir. This prevents the motor pump from developing too high of pressures and damaging the hydraulic system components, hoses, or the motor pump itself.

When the operator selects one of the four down functions (BACK DOWN, BASE DOWN, FOOT DOWN, TILT DOWN), either with the hand control or optional foot control, the PC control board starts the motor pump pumping, energizes the anti-cavitation solenoid valve, causing it to open, and energizes the selected cylinder solenoid valve, causing it to open. When the motor pump starts pumping, suction is created by the rotating pump gears, which forces oil to flow around the reservoir check valve and into the pump gears. The pump gears pressurize the oil which flows to the down function shuttle valve. The check ball and shuttle in the down function shuttle valve are pushed to the open position by the oil, allowing oil to flow through the shuttle valve by flowing around the check ball (with the shuttle in the open position, oil is prevented from flowing through the reservoir ports and returning to the reservoir). The oil then flows through the open anti-cavitation solenoid valve and into the rod end of the cylinder, causing the cylinder rod to retract. When the cylinder rod retracts, oil is forced out of the base of the cylinder, through the open cylinder solenoid valve to the up function shuttle valve. The check ball and the shuttle in the up function shuttle valve are pushed to the closed position by the oil, which prevents oil from flowing through the shuttle valve and into the motor pump, but allows the oil to flow through the newly uncovered reservoir ports into the reservoir. When the cylinder rod reaches the end of its travel, the down functions relief valve opens when the pressure reaches 375 - 425 PSI (25.8 - 29.3 BARS) and allows the oil to return to the reservoir. This prevents the motor pump from developing too high of pressures and damaging the hydraulic system components, hoses, or the motor pump itself.

When the operator releases the function button on the hand control or pedal on the foot control, the PC control board shuts the motor pump off, de-energizes the anti-cavitation solenoid valve, and de-energizes the cylinder solenoid valve. The anti-cavitation solenoid valve is in the hydraulic system to prevent oil from escaping out of the rod end of a cylinder while the table is not being moved. Otherwise, a cylinder rod would be able to extend on its own if upward pressure was placed on that function of the table top by the doctor or patient. The cylinder solenoid valves are in the hydraulic system to prevent oil from escaping out of the base of the cylinder assemblies Otherwise, a cylinder assembly could retract on its own, allowing the table top to drift.

There is a pan safety limit switch on the table. If the irrigation pan assembly is not pushed into its fully stowed position, the pan safety limit switch will not be tripped. The PC control board senses this and will not allow the foot function to be moved until the pan safety limit switch is tripped by fully stowing the irrigation pan assembly. Also, the PC control board illuminates a PAN OUT indicator lamp on the hand control, while the FOOT UP or FOOT DOWN function is selected, to inform the operator of this condition. This safety feature prevents the table operator from accidentally running the foot section into the irrigation pan assembly.

The table has an auto return function. When the AUTO RETURN button is pressed, the PC control board starts the motor pump, energizes the anti-cavitation solenoid valve, and energizes the base cylinder solenoid valve. The table top lowers until it reaches a preset height at which the base down limit switch is tripped by the table top. When the PC control board senses that the base down limit switch has been tripped, it de-energizes base cylinder solenoid valve and the anti-cavitation solenoid valve, and shuts off the motor pump. If the base down limit switch fails to trip within 15 seconds of the AUTO RETURN button being pressed, the PC control board will automatically de-energize base cylinder solenoid valve and the anti-cavitation solenoid valve, and shut off the motor pump.

The hand control also has a STOP button. If, after the AUTO RETURN button has been selected, the operator decides to stop the table top from lowering, the STOP button can be pressed. The PC control board senses the STOP button has been pressed and stops the auto return function.

There are nine L.E.D.'s on the PC control board which can be used as troubleshooting aids; seven red L.E.D.'s, one green L.E.D. and one amber L.E.D. Each red L.E.D. is located directly above the relay it represents; the foot solenoid valve relay, tilt solenoid valve relay, back solenoid valve relay, base solenoid valve relay, anti-cavitation solenoid valve relay, motor pump up functions relay, and the motor pump down functions relay. If a red L.E.D. illuminates, it indicates that the

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coil in its relay has been energized by the PC control board. When one of the eight function buttons on the hand control have been pressed, three red L.E.D.'s should illuminate; an L.E.D. representing the relay of the function which was selected, the anti-cavitation solenoid valve relay L.E.D., and either the motor pump up functions relay L.E.D. or the motor pump down functions relay L.E.D. If one of the three L.E.D.'s do not illuminate, there may be problem with the PC control board. If all three L.E.D.'s do not illuminate, there may be a problem in the hand control. The amber L.E.D. on the PC control board represents the pan safety limit switch. If the amber L.E.D. is illuminated, it indicates that the pan safety limit switch is either not properly tripped or the circuit is open. The green L.E.D. on the PC control board represents the base down limit switch. If the green L.E.D. is illuminated, it indicates that the base down limit switch is either properly tripped or the circuit is shorted.

If a hand control command and a foot control command are received simultaneously by the PC control board, precedence is given to the hand control command.

1.4 SPECIFICATIONS (See Figure 1-2)

Factual data for the 319 Power Examination Table is provided in Table 1-1.

Table 1-1. Specifications

Description	Data
Weight:	
Without Shipping Carton	550 lb (249.5 kg)
With Shipping Carton	605 lb (274.5 kg)
Shipping Carton	58 in. "L" x 32 in. "W" x 42 in. "H" (147 cm x 81 cm x 107 cm)
Dimensions:	
Table Top Length	70 in. (177.8 cm)
Table Top Length (headrest extended)	80 in. (203.2 cm)
Table Top Width	27 in. (68.6 cm)
Overall Width	27 in. (68.6 cm)
Table Positioning:	
Table Top Height (Adjustable)	26 in. to 42 in. (66 cm to 106.7 cm)
Weight Capacity	350 lb (158.75 kg)
Oil Used In Hydraulic System	Light grade medicinal mineral oil
Hydraulic System Oil Capacity (with all four cylinders retracted)	Approx. 2.5 quarts (2.4 liters)
Motor Pump Reservoir Capacity	Approx. 1 quart (0.946 liter)
Electrical Requirements:	
115 VAC Unit	110 - 120 VAC, 60 HZ, 12 amp, single phase
Recommended Circuit: A separate (dedicated) circuit is recommended for this examination table. The examination table *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.	
Up Function Relief Valve Setting	Valve opens at 650 - 700 PSI or above (44.8 - 48.3 BARS)
Down Function Relief Valve Setting	Valve opens at 375 - 425 PSI or above (25.8 - 29.3 BARS)

1.5 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

(1) Refer to Figure 1-3 to determine the location of the model number and serial number of the table and record this data.

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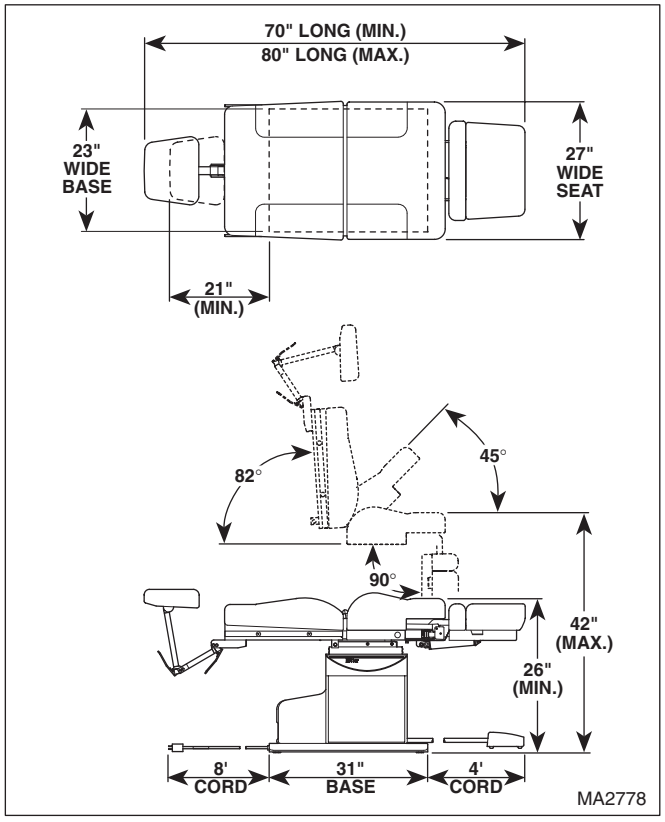

Figure 1-2. Chair Dimensions

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the table for this information. Otherwise, this information may be obtained from the dealer that sold the table.

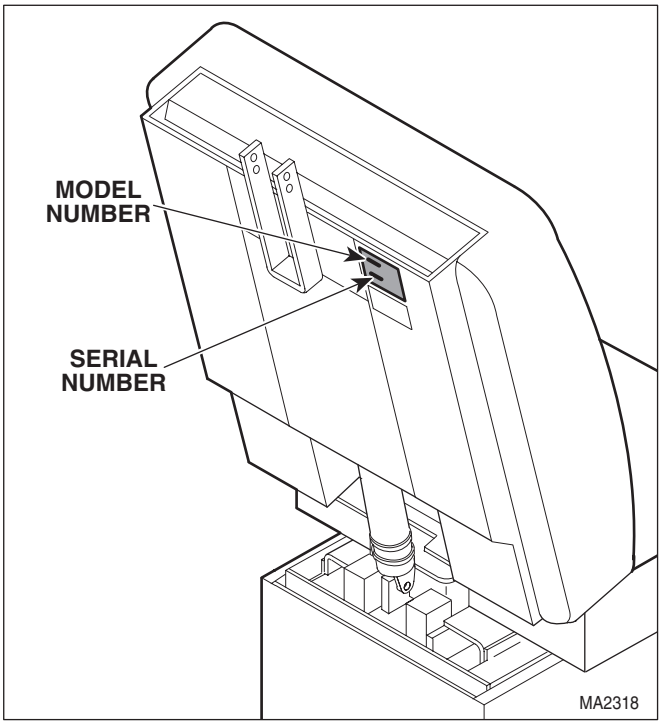

Figure 1-3. Model Number / Serial Number Location

(3) Determine the installation date of the table and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Products Technical Services Department. See back cover of this manual for the phone number or use the Fax Order Form (See page 7-2 for Fax Order Form).

1.6 Special Tools

Table 1-2 lists all of the special tools needed to repair the table, how to obtain the special tools, and the purpose of each special tool.

Table 1-2. Special Tools

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Multimeter	Commercially Available	Any Type	Used to perform continuity and voltage checks.
Torque Wrench	Commercially Available	Any Type	Used to tighten nuts or screws to specified values.

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SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test

In order to effectively diagnose the malfunction of the examination table, it may be necessary to perform an operational test as follows:

DANGER
Refer to the Operator Manual for complete instructions on operating the examination table. Failure to do so could result in personal injury.

NOTE
The Operational Test, for the most part, only describes what should happen when the table is operated. If the table does something other than described, a problem has been discovered. Refer to the Troubleshooting Guide to determine the cause of the problem and its correction.

(1) Remove motor cover assembly (Refer to para 4.2).

(2) Plug the table into a grounded, non-isolated, correctly polarized outlet that has the proper voltage output for the table.

CAUTION
Make sure irrigation pan is in fully stowed position or steps 3 and 4 will not work correctly.

(3) Press BASE UP, BASE DOWN, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN buttons on hand control.

(4) Observe. The table top should move in direction corresponding to the button which is pressed. When one of the up function buttons are pressed, the anti-cavitation solenoid valve relay L.E.D., motor pump up function relay L.E.D., and the L.E.D. representing the relay of the particular function which was selected should be illuminated. When one of the down function buttons are pressed, the anti-cavitation solenoid valve relay L.E.D., motor pump down function relay L.E.D., and the L.E.D. representing the relay of the particular function which was selected should be illuminated.

(5) Pull the irrigation pan assembly outward until pan safety limit switch is no longer tripped.

(6) Observe. The amber pan safety limit switch L.E.D. on PC control board should illuminate, indicating pan safety limit switch is no longer tripped.

(7) Press either FOOT UP or FOOT DOWN button on hand control.

(8) The foot section of table top should not move when either FOOT UP or FOOT DOWN button is pressed and hand control should display the words PAN OUT.

(9) Push irrigation pan assembly inward until pan safety limit switch is tripped. Press either FOOT UP or FOOT DOWN button on hand control.

(10) Observe. The amber pan safety limit switch L.E.D., on the PC control board, should stop illuminating, indicating pan safety limit switch has been tripped. The foot section of table top should move when FOOT UP or FOOT DOWN button is pressed.

(11) Press BASE DOWN button on hand control and lower table top to its lowest height. Press AUTO RETURN button on hand control.

(12) Observe. The green base down limit switch L.E.D. should illuminate, indicating base down limit switch is tripped. The table top should not move when then AUTO RETURN button is pressed.

(13) Press BASE UP button on hand control and raise table top to its highest position.

(14) Observe. The green base down limit switch L.E.D. should stop illuminating, indicating base down limit switch is no longer tripped.

(15) Press AUTO RETURN button, wait one second, and then press STOP button on hand control.

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SECTION II
TESTING AND TROUBLESHOOTING

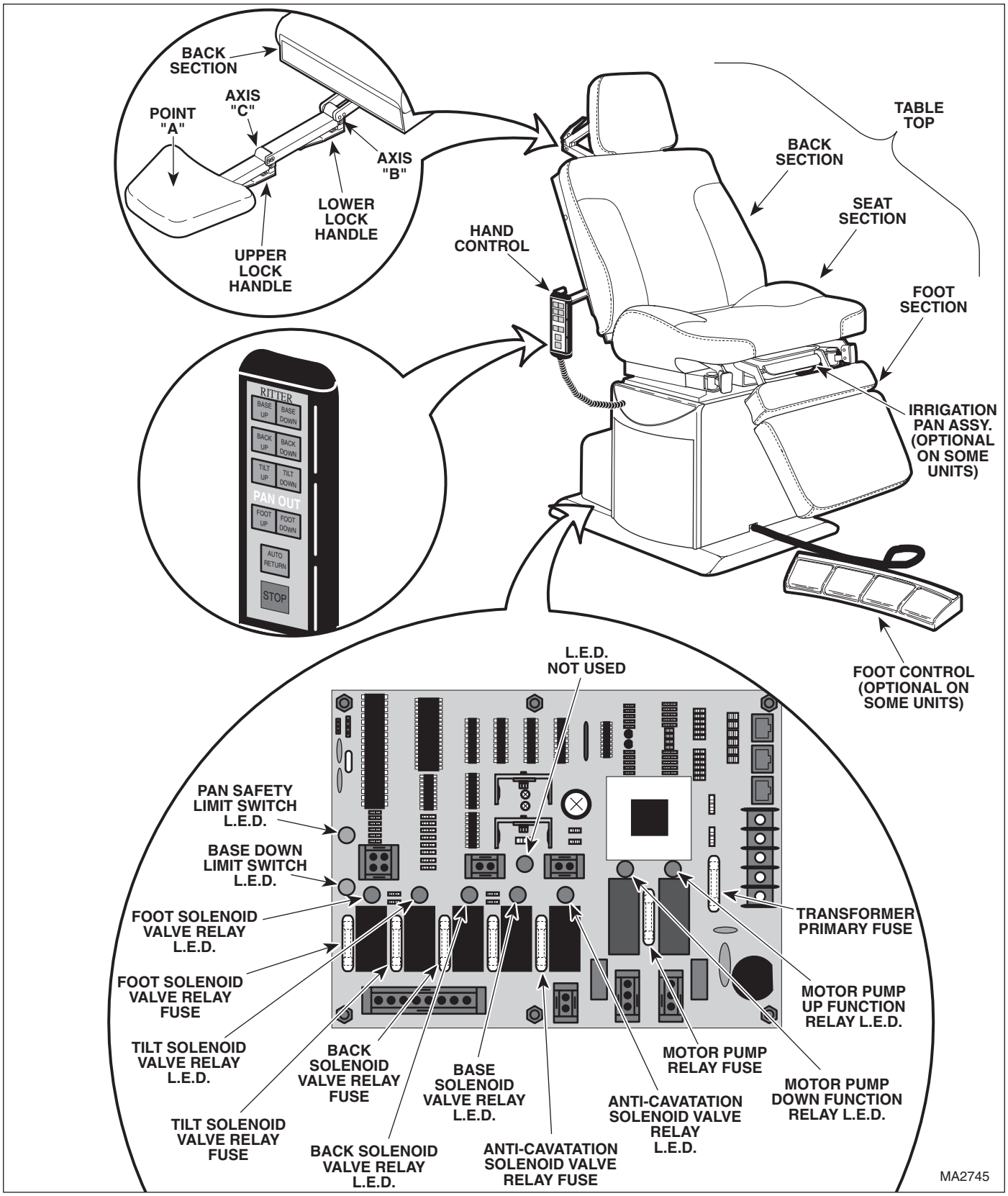

Figure 2-1. Operational Test

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(16) Observe. When AUTO RETURN button is pressed, table top should begin to lower. When STOP button is pressed, the table top should immediately stop moving.

(17) Press AUTO RETURN button on hand control.

(18) Observe. When the table top lowers to height of base down limit switch, the green base down limit switch L.E.D. should illuminate, indicating base down limit switch is tripped. The motor pump should stop running as soon as base down limit switch is tripped.

NOTE
Steps 19 and 20 apply only to tables which contain an optional foot control.

(19) Depress BASE DOWN, BASE UP, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN pedals, and AUTO RETURN and STOP buttons on foot control.

(20) Observe. The table top should move in direction corresponding to its pedal / button as it is depressed.

(21) Unlock upper lock handle and lower lock handle, position headrest in a horizontal position as shown, and then relock upper lock handle and lower lock handle.

(22) Place a 45 lb (20.4 kg) static load at Point A.

(23) Observe. There should be no movement at Axis B or Axis C when the static load is applied to the headrest. The maximum force required to unclamp a locking handle should be 17 lbs. (7.7 kg) and the maximum force required to clamp a locking handle should be 35 lbs. (15.8 kg).

(24) Install motor cover assembly (Refer to para 4.2).

2.2 Troubleshooting Procedures

Table 2-1 is a Troubleshooting Guide which is used to determine the cause of the malfunction.

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up or down functions or AUTO RETURN function is selected.	When a function button is pressed, the motor pump does not run and solenoids cannot be heard being energized (audible click).	Power cord is not plugged into facility wall outlet.	Check to see if power cord is plugged in.	Plug power cord into facility wall outlet.
		Facility circuit breaker providing power to table is tripped.	Check to see if facility circuit breaker is tripped. One way of checking this is to plug a lamp into outlet table was plugged into.	If circuit breaker is tripped, determine what caused circuit breaker to trip, correct the problem, and then reset/replace circuit breaker.
		Transformer primary fuse (1/8 amp) on PC control board is blown.	Refer to Figure 2-1 for this check. Perform continuity check on transformer primary fuse or replace suspect fuse with known working fuse.	If fuse was blown, determine what caused fuse to blow, correct the problem, and then replace transformer primary fuse.
		Wire connections loose.	Check all wiring connections from power cord to PC control board. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC	Replace PC control board. Refer to para 4.16.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up or down functions or AUTO RETURN function is selected - Continued.	When a function button is pressed, motor pump does not run, but solenoids can be heard being energized (audible click).	Capacitor(s) is blown.	Replace suspect capacitor(s) with known working capacitor(s).	Replace capacitor(s). Refer to para 4.15.
		Motor thermal overload switch is activated because motor pump overheated.	Wait 15 to 20 minutes.	Allow motor pump to cool and then try to operate table. If motor pump does not run now, replace motor pump. Refer to para 4.9.
		Motor pump relays fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on motor pump relays fuse or replace suspect fuse with known working fuse.	Replace motor pump relays fuse.
		Motor pump is burned out.	Refer to Figure 2-1 for this check. Check to see if the motor pump up functions relay L.E.D. illuminates when an up function button is pressed or if a motor pump down functions relay L.E.D. illuminates when a down function button is pressed.	If the motor pump up functions relay L.E.D. or motor pump down functions relay L.E.D. illuminates when a function button is pressed, but the motor pump does not run, replace motor pump. Refer to para 4.9. If not, replace PC control board. Refer to para 4.16.
		PC control board is defective and is not supplying power to motor pump.	Refer to Figure 2-1 for this check. Check to see if the motor pump up functions relay L.E.D. illuminates when an up function button is pressed or if a motor pump down functions relay L.E.D. illuminates when a down function button is pressed.	If the motor pump up functions relay L.E.D. or motor pump down functions relay L.E.D. illuminates when a function button is pressed, replace motor pump. Refer to para 4.9. If not, replace PC control board. Refer to para 4.16.
	When a function button is pressed, motor pump runs and solenoids can be heard energizing.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
	When a function button is pressed, motor pump hums, but does not run.	Capacitor(s) is blown.	Replace suspect capacitor(s) with known working capacitor(s).	Replace capacitor(s). Refer to para 4.15.
		Motor pump is locked up or burned out.	Refer to Figure 2-1 for this check. Check to see if the motor pump up functions relay L.E.D. or motor pump down functions relay L.E.D. illuminates when a function button is	If the motor pump up functions relay L.E.D. or motor pump down functions relay L.E.D. illuminates when a function button is pressed, replace motor pump. Refer to para 4.9. If not, replace PC control board. Refer to

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
No functions can be initiated from hand control.	Table has power, but no functions can be initiated from hand control.	Coil cord is not plugged into hand control or hand inlet PC board.	Check to see if coil cord is plugged in properly.	Plug coil cord into hand control or hand inlet PC board. Clean any dirty connections.
		Modular cord came unplugged from hand inlet PC board or PC control board.	Check to see if modular cord is plugged in properly.	Plug modular cord into hand inlet PC board or PC control board.
		Coil cord or modular cord has a broken wire or connection.	Perform a continuity check on suspect cord or replace suspect cord with known working cord.	Replace coil cord or modular cord.
		Hand inlet PC board is malfunctioning.	Plug the hand control into the hand inlet PC board on the other side of the table.	Replace hand inlet PC board. Refer to para 4.17.
		Hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.
No functions can be initiated from foot control.	Table has power, but no functions can be initiated from foot control.	Coil cord is not plugged into foot inlet PC board.	Check to see if coil cord is plugged in properly.	Plug coil cord into foot inlet PC board. Clean any dirty connections.
		Modular cord came unplugged from foot inlet PC board or PC control board.	Check to see if modular cord is plugged in properly.	Plug modular cord into foot inlet PC board or PC control board.
		Coil cord or modular cord has a broken wire or connection.	Use a multimeter to perform a continuity check on the cord or replace suspect cord with known working cord.	Replace coil cord or modular cord.
		Foot control interface board is malfunctioning.	Replace suspect foot control interface board with known working interface board.	Replace foot control interface board. Refer to para 4.29.
		Foot inlet PC board is malfunctioning.	Replace suspect foot inlet PC board with known working foot inlet PC board.	Replace foot inlet PC board. Refer to para 4.18.
		PC control board is malfunctioning.	Replace suspect PC control board with	Replace PC control board. Refer to para 4.16.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
One or more actions cannot be initiated from hand or foot control.	Some actions can be initiated with hand control or foot control, but some can not.	Switch membrane(s) on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		Foot control interface board is malfunctioning.	Replace suspect foot control interface board with known working interface board.	Replace foot control interface board. Refer to para 4.29.
		Hand inlet PC board or foot inlet PC board is malfunctioning.	Plug the hand control into the hand inlet PC board on the other side of the table.	Replace hand inlet PC board. Refer to para 4.17.
			Replace suspect foot inlet PC board with known working foot inlet PC board.	Replace foot inlet PC board. Refer to para 4.18.
		A foot switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace foot switch. Refer to para 4.27 and / or 4.28.
		Wire connections loose in foot control.	Check all wiring connections at switches.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
The BASE UP, BACK UP, TILT UP, and FOOT UP functions do not work, but BASE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions do.	Motor pump runs when an up function button is pressed, but table does not move.	Anti-cavitation solenoid valve relay fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on anti-cavitation solenoid valve relay fuse.	Replace anti-cavitation solenoid valve relay fuse.
		Anti-cavitation solenoid valve is malfunctioning.	Check for slight magnetism on bottom side of anti-cavitation solenoid valve, indicating solenoid is not burned out or replace suspect anti-cavitation valve with known working anti-cavitation valve.	Replace anti-cavitation solenoid valve. Refer to para 4.6.
		Up function shuttle valve is malfunctioning.	Check to see if check ball is loose in up function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace up function shuttle valve. Refer to para 4.4.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump	Replace motor pump. Refer to para 4.9.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
The BASE UP, BACK UP, TILT UP, and FOOT UP functions do not work, but BASE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions do - Continued.	Motor pump does not run when an up function button is pressed, but runs when a down function button is pressed.	Motor pump up functions relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if the motor pump up functions relay L.E.D. illuminates when an up function button is pressed (indicating motor pump up functions relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9.
The BASE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions do not work, but BASE UP, BACK UP, TILT UP, and FOOT UP functions do.	Motor pump runs when a down function button is pressed, but table does not move.	Down function shuttle valve is malfunctioning.	Check to see if check ball is loose in down function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace down function shuttle valve. Refer to para 4.5.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9.
	Motor pump does not run when a down function button is pressed, but runs when an up function button is pressed.	Motor pump down functions relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if the motor pump down functions relay L.E.D. illuminates when a down function button is pressed (indicating motor pump down functions relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9.
BASE UP function works, but BASE DOWN function does not or BASE DOWN function works but BASE UP function does not. All other functions work.	Motor pump does not run and solenoids do not energize.	Switch membrane for BASE UP or BASE DOWN on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		BASE UP or BASE DOWN foot pedal foot switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace foot pedal foot switch. Refer to para 4.27.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BACK UP function works, but BACK DOWN function does not or BACK DOWN function works but BACK UP function does not. All other functions work.	Motor pump does not run and solenoids do not energize.	Switch membrane for BACK UP or BACK DOWN on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		BACK UP or BACK DOWN foot pedal foot switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace foot pedal foot switch. Refer to para 4.27.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.
TILT UP function works, but TILT DOWN function does not or TILT DOWN function works but TILT UP function does not. All other functions work.	Motor pump does not run and solenoids do not energize.	Switch membrane for TILT UP or TILT DOWN on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		TILT UP or TILT DOWN foot pedal foot switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace foot pedal foot switch. Refer to para 4.27.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.
FOOT UP function works, but FOOT DOWN function does not or FOOT DOWN function works but FOOT UP function does not. All other functions work.	Motor pump does not run and solenoids do not energize.	Switch membrane for FOOT UP or FOOT DOWN on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		FOOT UP or FOOT DOWN foot pedal foot switch on foot control is malfunctioning.	Perform a continuity check on foot pedal foot switch or replace suspect switch with known working switch.	Replace foot pedal foot switch. Refer to para 4.27.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BASE UP and BASE DOWN functions do not work. All other functions work.	Motor pump runs when BASE UP or BASE DOWN buttons are pressed, but table does not move.	Base solenoid valve relay fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on base cylinder solenoid valve relay fuse.	Replace base solenoid valve relay fuse.
		Base solenoid valve relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if base solenoid valve relay L.E.D. illuminates when BASE UP or BASE DOWN button is pressed (indicating base solenoid valve relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16. If L.E.D. does illuminate, replace base cylinder. Refer to para 4.13.
		Base solenoid valve is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if base solenoid valve relay L.E.D. illuminates when BASE UP or BASE DOWN button is pressed (indicating base solenoid valve relay is working).	If L.E.D. does illuminate, replace base cylinder. Refer to para 4.13. If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16.
BACK UP and BACK DOWN functions do not work. All other functions work.	Motor pump runs when BACK UP or BACK DOWN buttons are pressed, but table does not move.	Back solenoid valve relay fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on back solenoid valve relay fuse.	Replace back solenoid valve relay fuse.
		Back solenoid valve relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if back solenoid valve relay L.E.D. illuminates when BACK UP or BACK DOWN button is pressed (indicating back solenoid valve relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16. If L.E.D. does illuminate, replace back cylinder. Refer to para 4.11.
		Back solenoid valve is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if back solenoid valve relay L.E.D. illuminates when BACK UP or BACK DOWN button is pressed (indicating back solenoid valve relay is working).	If L.E.D. does illuminate, replace back cylinder. Refer to para 4.11. If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16.
TILT UP and TILT DOWN functions do not work. All other functions work.	Motor pump runs when TILT UP or TILT DOWN buttons are pressed, but table does not move.	Tilt solenoid valve relay fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on tilt solenoid valve relay fuse.	Replace tilt solenoid valve relay fuse.
		Tilt solenoid valve relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if tilt solenoid valve relay L.E.D. illuminates when TILT UP or TILT DOWN button is pressed (indicating tilt solenoid valve relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16. If L.E.D. does illuminate, replace tilt cylinder. Refer to para 4.12.
		Tilt solenoid valve is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if tilt solenoid valve relay L.E.D. illuminates when TILT UP or TILT DOWN button is pressed	If L.E.D. does illuminate, replace tilt cylinder. Refer to para 4.12. If L.E.D. does not illuminate. replace PC

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
FOOT UP and FOOT DOWN functions do not work. All other functions work.	Motor pump runs when FOOT UP or FOOT DOWN buttons are pressed, but foot section does not move.	Foot solenoid valve relay fuse is blown.	Refer to Figure 2-1 for this check. Perform a continuity check on foot solenoid valve relay fuse.	Replace foot solenoid valve relay fuse.
		Foot solenoid valve relay is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if foot solenoid valve relay L.E.D. illuminates when FOOT UP or FOOT DOWN button is pressed (indicating foot solenoid valve relay is working).	If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16. If L.E.D. does illuminate, replace foot cylinder. Refer to para 4.14.
		Foot solenoid valve is malfunctioning.	Refer to Figure 2-1 for this check. Check to see if foot solenoid valve relay L.E.D. illuminates when FOOT UP or FOOT DOWN button is pressed (indicating foot solenoid valve relay is working).	If L.E.D. does illuminate, replace foot cylinder. Refer to para 4.14. If L.E.D. does not illuminate, replace PC control board. Refer to para 4.16.
	Motor pump does not run when FOOT UP or FOOT DOWN buttons are pressed.	Irrigation pan assembly is not pushed in all the way.	Check that the irrigation pan assembly is pushed in all the way.	Push irrigation pan assembly in all the way.
		Pan safety limit switch is out of adjustment.	Refer to Figure 2-1 for this check. Check to see if pan safety limit switch L.E.D. illuminates when irrigation pan is pushed in all the way (L.E.D. should only illuminate when irrigation pan is pulled out).	Adjust pan safety limit switch so it is tripped when irrigation pan is pushed in all the way. Refer to para 4.19.
		Pan safety limit switch is malfunctioning.	Refer to Figure 2-1 for this check. Perform continuity check on pan safety limit switch (pan in = closed) or check to see if pan safety limit switch L.E.D. illuminates when irrigation pan is pushed in all the way (L.E.D. should only illuminate when irrigation pan is pulled out).	If L.E.D. illuminates when irrigation pan is pushed in all the way, replace pan safety limit switch. Refer to para 4.19.
One of the four functions drift by itself.	Table functions properly otherwise.	A cylinder solenoid valve is stuck in open position or is malfunctioning.	Try to flush cylinder solenoid valve by running oil through cylinder in both directions 10 times.	If necessary, replace cylinder.
		A function's cylinder solenoid valve relay is stuck in closed position.	Check contacts of suspect cylinder solenoid valve relay when no buttons are being pressed.	If contacts on relay are closed, replace PC control board. Refer to para 4.16.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Back section of table top may be lifted by hand or tilt function may drift by itself.	Table functions properly otherwise.	Anti-cavitation solenoid valve is malfunctioning.	Replace suspect anti-cavitation solenoid valve with known working anti-cavitation solenoid valve.	Replace anti-cavitation solenoid valve. Refer to para 4.6.
When AUTO RETURN button is pressed, table top lowers completely but motor pump does not shut off.	Motor pump runs for 5 to 8 seconds after table top is lowered.	Base down limit switch is out of adjustment.	Check position of base down limit switch.	Adjust base down limit switch. Refer to para 4.20.
		Base down limit switch is malfunctioning (stuck in open position).	Refer to Figure 2-1 for this check. Perform continuity check on base down limit switch (base down = closed) or check to see if base down limit switch L.E.D. illuminates when table is completely lowered (should illuminate to indicate base down limit switch has been tripped).	If L.E.D. is not illuminated, adjust or replace base down limit switch. Refer to para 4.20. If L.E.D. is illuminated, check wiring or replace PC control board. Refer to para 4.16.
When AUTO RETURN button is pressed, nothing happens.	Motor does not run.	Base down limit switch is malfunctioning (stuck in closed position).	Perform continuity check on base down limit switch (base down = closed) or check to see if base down limit switch L.E.D. illuminates when table is in raised position (indicates base down limit switch is stuck closed).	If L.E.D. is illuminated, replace base down limit switch. Refer to para 4.20. If L.E.D. is not illuminated, check wiring or replace PC control board. Refer to para 4.16.
		Switch membrane for AUTO RETURN button on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		AUTO RETURN switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace switch. Refer to para 4.28.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
When STOP button is pressed after auto return function has been initiated, table still continues to move.	Motor pump continues to run after STOP button is pressed.	Switch membrane for STOP button on hand control panel is malfunctioning.	Replace suspect hand control panel with known working hand control panel.	Replace hand control panel. Refer to para 4.26.
		STOP switch on foot control is malfunctioning.	Perform a continuity check on switch or replace suspect switch with known working switch.	Replace switch. Refer to para 4.28.
		PC control board is malfunctioning.	Replace suspect PC control board with known working PC control board.	Replace PC control board. Refer to para 4.16.
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Occurs for both the up and down functions	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
		Up functions and down functions relief valves are malfunctioning.	Replace suspect relief valves with known working relief valves.	Replace up functions and down functions relief valves. Refer to para 4.7 and / or 4.8.
	Occurs for up functions only.	Up functions relief valve is malfunctioning.	Replace suspect up functions relief valve with known working relief valve.	Replace up functions relief valve. Refer to para 4.7.
	Occurs for down functions only.	Down function relief valve is malfunctioning.	Replace suspect down functions relief valve with known working relief valve.	Replace down functions relief valve. Refer to para 4.8.
Excessive sideways play of table top.	Table is not stable and can be moved from side to side.	Chain assemblies are loose.	Check tension of chain assemblies.	Adjust tension of chain assemblies. Refer to para 4.21.
		Base slide assembly is worn or deformed	Check condition of base slide assembly	Replace base slide assembly. Refer to para

SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the table. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of examination table for obvious damage such as: cracks in components, missing components, dents in components, leaking oil, or any other visible damage which would cause examination table to be unsafe to operate or would compromise the performance of the table. Repair examination table as necessary.
	Fasteners/hardware	Check table for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Pivot points/moving parts/accessories	Lubricate all exposed pivot points, moving parts, and accessories with silicone based lubricant.
	Hydraulic hoses, tubes, and fittings	Check all hydraulic hoses and fittings for leaks. Replace any components causing leaks. Replace any hoses which have kinks, cuts, holes, or other damage.
	Hydraulic functions	Check that all eight up and down functions operate properly. If not, refer to the Troubleshooting Guide to determine the cause of the problem. Clean or replace components as necessary.
	Drift	Check each cylinder to see if it drifts. Replace cylinder if necessary. Replace anti-cavitation solenoid valve if necessary. Refer to para 4.6.
	Oil Level	Check oil level in motor pump. Add oil to motor pump if necessary. Refer to para 4.3.
	Cylinders	Inspect all cylinders for signs of internal leaking or for weak operation. Replace cylinders as necessary.
	Stirrup Assemblies	Check that stirrup assemblies lock into one of the three positions. Check for wear. Replace components as necessary. Refer to para 4.25.
	Headrest Assembly	Check adjustment of headrest. When headrest is fully extended, it should be capable of supporting a static load of 45 lbs (20.4 kg). Upper and lower locking handles should not require excessive force to operate. If headrest does not have enough holding power, adjust headrest. Refer to para 4.23.
	Pan safety limit switch	Check that pan safety limit switch prevents foot function from moving when limit switch is not tripped. Adjust if necessary. Refer to para 4.19.
	Excessive sideways play of table top	Check that table top does not have excessive side play. Adjust chain assembly if necessary. Refer to para 4.21.
	Upholstery	Check all upholstery for rips, tears, or excessive wear. Replace cushions as necessary.
	Hand Control	Check for proper operation of hand control. Press each switch membrane to ensure it works. If malfunctioning, replace hand control panel. Refer to para 4.26.
	Foot Control	Check for proper operation of foot control assembly. Depress each switch to ensure it works. If malfunctioning, replace switch. Refer to para 4.27 and / or 4.28.
	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Operational Test	Perform an Operational Test to determine if the table is operating within its specifications (Refer to para 2.1). Replace or adjust any malfunctioning components.

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SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
Perform an operational test on the table after the repair is completed to confirm the repair was properly made and that *all* malfunctions were repaired.

The following paragraphs contain removal, installation, repair, and adjustment procedures for the table.

4.2 Motor Cover Assembly Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove six screws (1, Figure 4-1) and motor cover assembly (2) from back outer shroud (3).

B. Installation

(1) Install motor cover assembly (2) against back outer shroud (3) and secure with six screws (1), making sure top edge of motor cover assembly is inserted behind lip of back outer shroud.

(2) Plug table power cord into outlet.

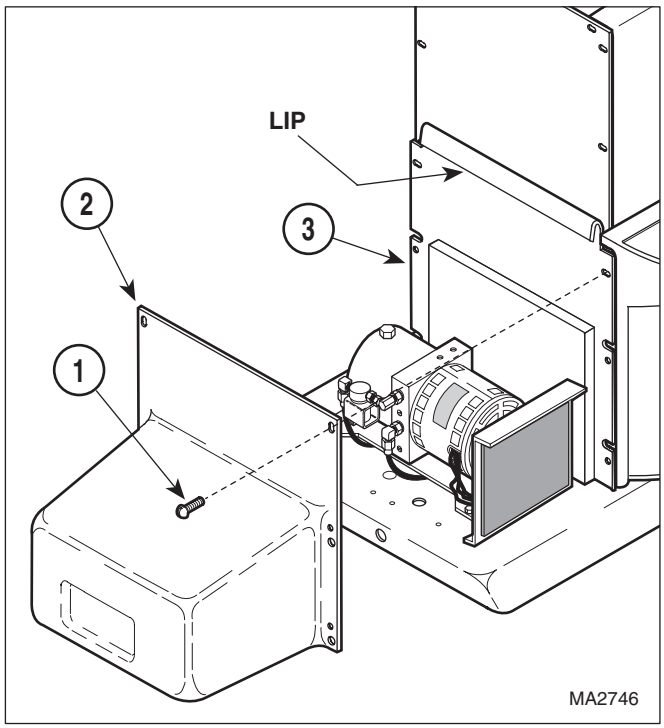

Figure 4-1. Motor Cover Assembly Removal / Installation

4.3 Checking / Adding Oil To Motor Pump

A. Checking / Adding Oil

(1) Move the BASE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-2) from motor pump (2).

(4) Remove screw (3) and gasket (4) from motor pump (2).

(5) Check oil level. If oil level in reservoir is not even with oil level check hole, oil must be added.

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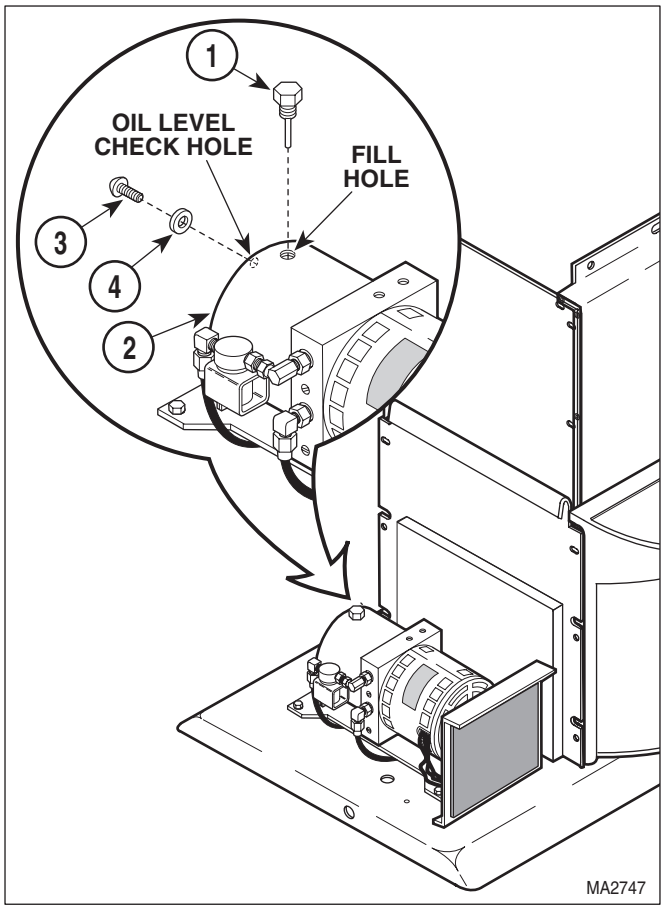

Figure 4-2. Checking / Adding Oil To Motor Pump

(6) Place a rag under oil level check hole.

CAUTION
Hydraulic system is designed for use with light grade mineral oil only. Failure to comply could result in hydraulic system failure.

(7) Add oil to fill hole until oil starts to run out of oil level check hole.

(8) Install gasket (4) and screw (3) on motor pump (2).

(9) Install filler cap (1) on motor pump (2).

(10) Move each function to its up and down limit several times. Repeat steps 1 thru 9.

(11) Install motor cover assembly (Refer to para 4.2).

(12) Dispose of used oil in accordance with local regulations.

4.4 Up Functions Shuttle Valve Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

NOTE
The up functions shuttle valve is lower than the oil level in the motor pump reservoir and oil will flow out of the up functions shuttle valve once the hose assembly is disconnected.

(3) Place drain pan under up functions shuttle valve (1, Figure 4-3).

(4) Disconnect hose assembly (2) from elbow of up functions shuttle valve (1).

(5) Remove up functions shuttle valve (1) from motor pump (3).

B. Installation

(1) Coat two o-rings on up functions shuttle valve (1) with mineral oil or vaseline.

(2) Install up functions shuttle valve (1) in motor pump (3).

(3) Connect hose assembly (2) to elbow of up functions shuttle valve (1).

(4) If necessary, add oil to motor pump (Refer to para 4.3).

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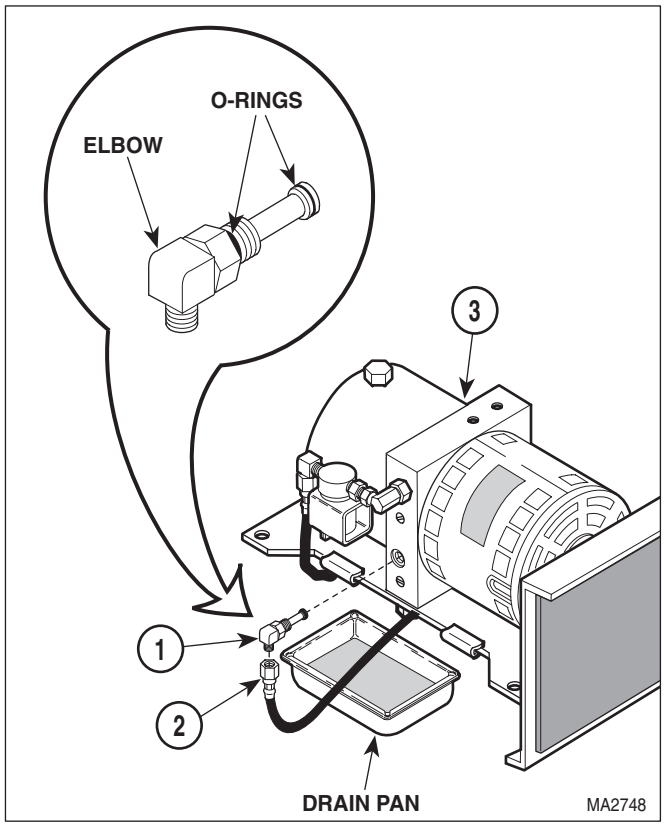

Figure 4-3. Up Functions Shuttle Valve Removal / Installation

(5) Install motor cover assembly (Refer to para 4.2).

(6) Plug table power cord into outlet.

(7) Dispose of used oil in accordance with local regulations.

4.5 Down Functions Shuttle Valve Removal / Installation

A. Removal

DANGER

Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

NOTE

The down functions shuttle valve is slightly lower than the oil level in the motor pump reservoir and oil will flow out of the down functions shuttle valve once the hose assembly is disconnected.

(3) Place rags or drain pan under down functions shuttle valve (1, Figure 4-4).

(4) Using a wrench to hold male connector (2) stationary, loosen jam nut of elbow (3). Disconnect elbow from male connector.

(5) Remove elbow (3) from down function shuttle valve (1).

(6) Remove down functions shuttle valve (1) from motor pump (4).

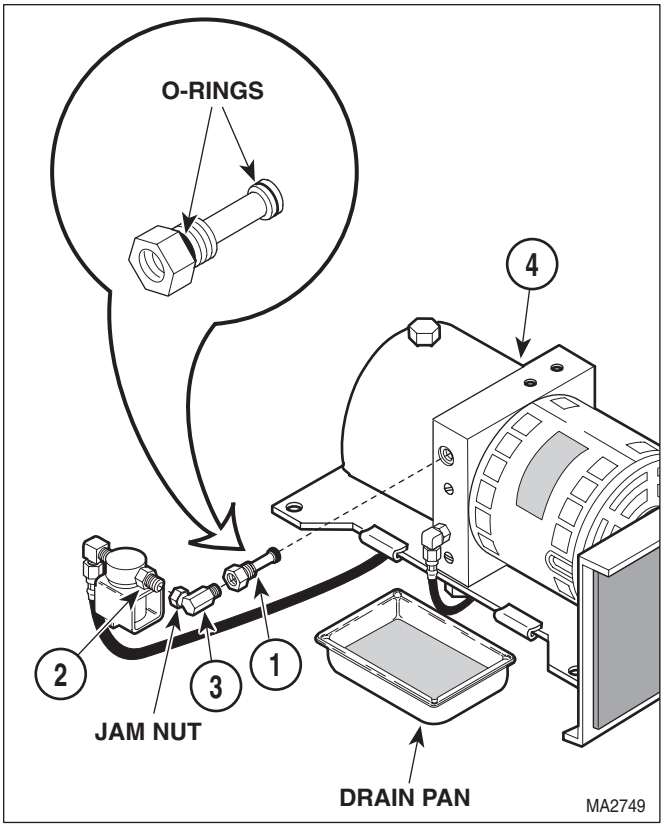

Figure 4-4. Down Functions Shuttle Valve Removal / Installation

B. Installation

NOTE
The down functions shuttle valve is sent from factory with an elbow installed on it. Remove it per step 1.

(1) Remove elbow from new down function shuttle valve (1). Discard elbow.

(2) Coat two o-rings on down functions shuttle valve (1) with mineral oil or vaseline.

(3) Install down functions shuttle valve (1) in motor pump (4).

(4) Coat threads of male connector (2) and elbow (3) with pipe thread tape or sealant.

(5) Install elbow (3) on down functions shuttle valve (1).

(6) Connect elbow (3) to male connector (2) and secure by tightening jam nut.

(7) If necessary, add oil to motor pump (Refer to para 4.3).

(8) Install motor cover assembly (Refer to para 4.2).

(9) Plug table power cord into outlet.

(10) Dispose of used oil in accordance with local regulations.

4.6 Anti-Cavitation Solenoid Valve Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-5) and back outer shroud (2) from left and right hand outer shrouds (3).

(4) Disconnect anti-cavitation wire harness (4) from PC control board (5).

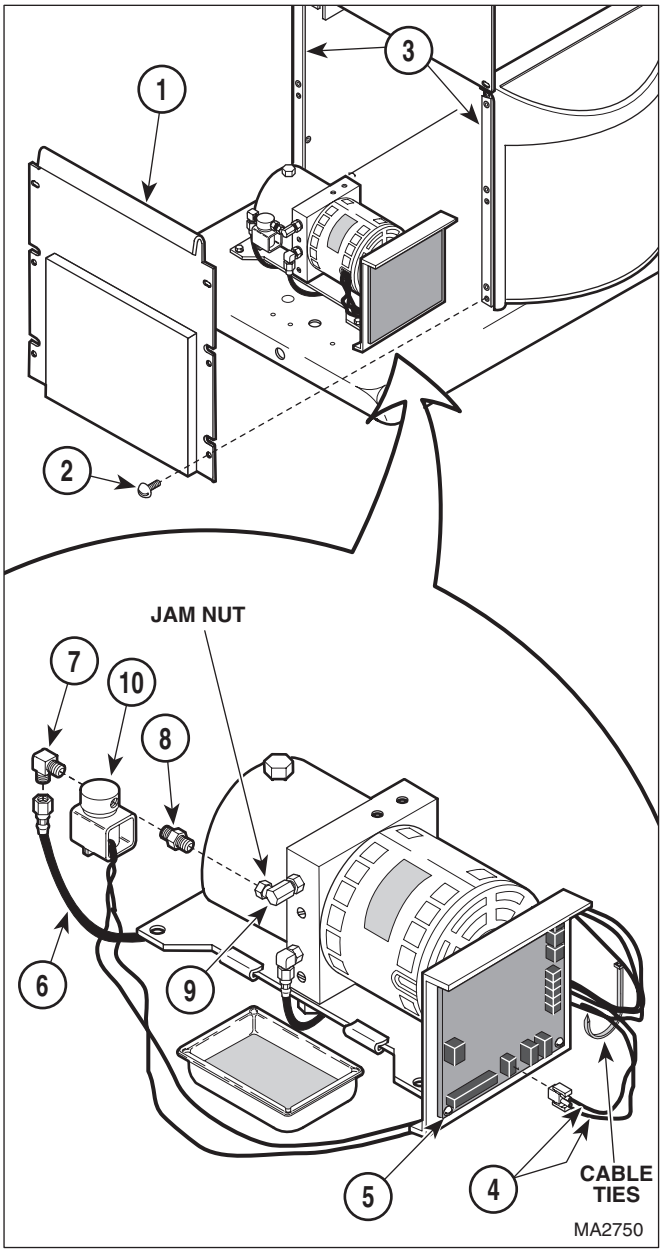

Figure 4-5. Anti-cavitation Solenoid Valve Removal / Installation

(5) Cut cable ties which secure anti-cavitation wire harness (4) to other wire harnesses.

(6) Disconnect hose assembly (6) from elbow (7).

(7) Using a wrench to hold male connector (8) stationary, loosen jam nut of elbow (9). Disconnect elbow (9) from male connector (8).

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(8) Remove elbow (7) and male connector (8) from anti-cavitation solenoid valve (10).

B. Installation

CAUTION
Do not coat last two threads of elbow and male connector with teflon tape or sealant. Otherwise, little particles of the tape / sealant can break loose and can contaminate hydraulic system.

(1) Coat threads of elbow (7) and male connector (8) with pipe thread tape or sealant.

(2) Install elbow (7) and male connector (8) on anti-cavitation solenoid valve (10).

(3) Connect hose assembly (6) to elbow (7).

(4) Coat threads of male connector (8) with pipe thread tape or sealant.

(5) Connect elbow (9) to male connector (8) and secure by tightening jam nut.

(6) Connect anti-cavitation wire harness (4) to PC control board (5).

(7) Secure anti-cavitation wire harness (4) to other wire harnesses with cable ties.

(8) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Install motor cover assembly (Refer to para 4.2).

(10) Plug table power cord into outlet.

4.7 Up Functions Relief Valve Removal / Installation

A. Removal

(1) If possible, raise BASE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

(4) Remove four screws (1, Figure 4-6) and back outer shroud (2) from left and right hand outer shrouds (3).

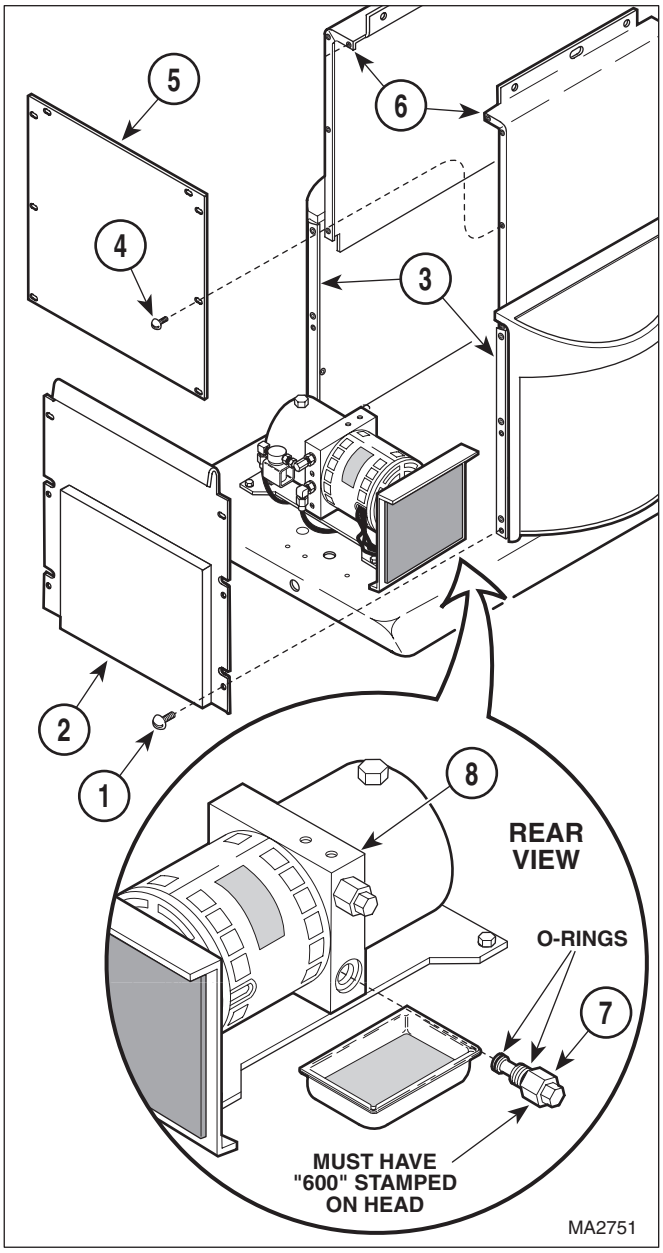

Figure 4-6. Up Functions Relief Valve Removal / Installation

NOTE
The back inner shroud must be removed if it will obstruct removal of up functions relief valve.

(5) If necessary, remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
Oil will flow out of relief valve port when up functions relief valve is removed. Either have the new up functions relief valve ready to install or place a drain pan under relief valve port to catch oil.

(6) Remove up functions relief valve (7) from motor pump (8).

B. Installation

(1) Coat two o-rings on up functions relief valve (7) with mineral oil or vaseline.

CAUTION
Make sure relief valve has "600" stamped on its hex head; it *must not* be stamped "L2". Failure to install proper relief valve will result in faulty table performance.

(2) Install up functions relief valve (7) in motor pump (8).

(3) If removed, install back inner shroud (5) on left and right inner shrouds (6) and secure with eight screws (4).

(4) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(5) Add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.8 Down Functions Relief Valve Removal / Installation

A. Removal

(1) If possible, raise BASE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

(4) Remove four screws (1, Figure 4-7) and back outer shroud (2) from left and right hand outer shrouds (3).

NOTE
The back inner shroud must be removed if it will obstruct removal of up functions relief valve.

(5) If necessary, remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
Oil will flow out of relief valve port when down functions relief valve is removed. Either have the new down functions relief valve ready to install or place a drain pan under relief valve port to catch oil.

(6) Remove down functions relief valve (7) from motor pump (8).

B. Installation

(1) Coat two o-rings on down functions relief valve (7) with mineral oil or vaseline.

CAUTION
Make sure relief valve has "L2" stamped on its hex head; it *must not* be stamped "600". Failure to install proper relief valve will result in faulty table performance.

(2) Install down functions relief valve (7) in motor pump (8).

(3) If removed, install back inner shroud (5) on left and right inner shrouds (6) and secure with eight screws (4).

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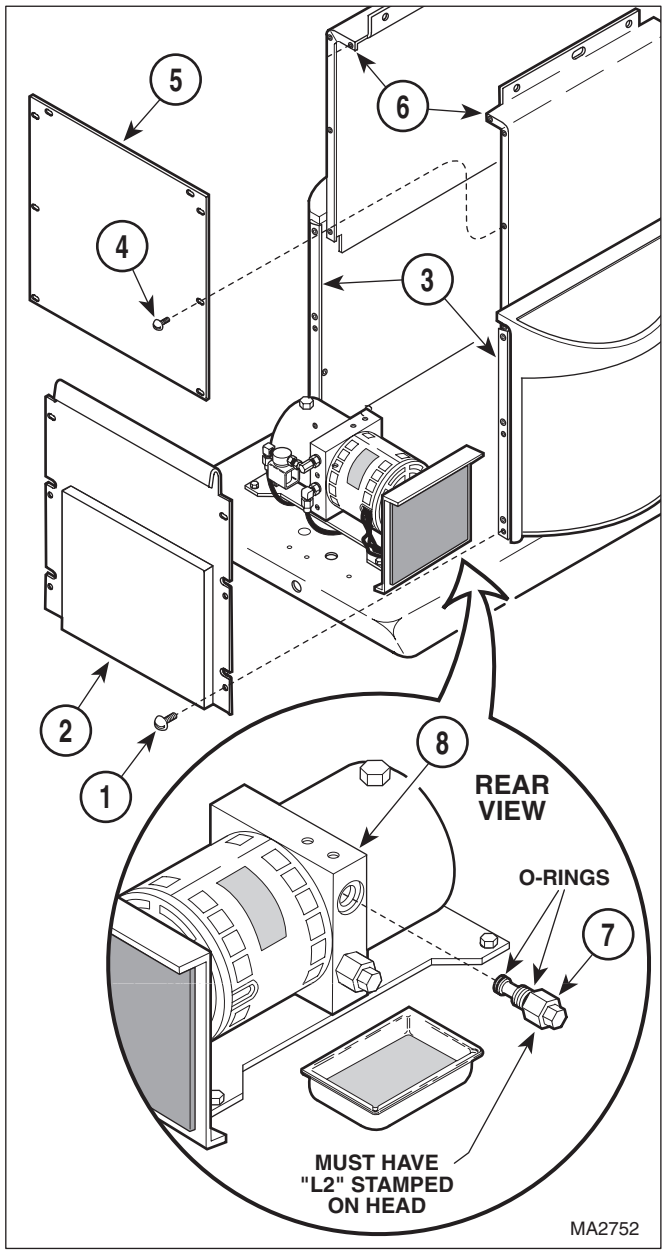

Figure 4-7. Down Functions Relief Valve Removal / Installation

(4) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.9 Motor Pump Assembly Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-8) and back outer shroud (2) from left and right hand outer shrouds (3).

(4) Disconnect motor pump wire harness (4) and anti-cavitation wire harness (5) from PC control board (6).

(5) Cut cable ties which secure motor pump wire harness (4) and anti-cavitation wire harness (5) to other wire harnesses.

(6) Remove four nuts (7) from four motor mounts (8).

(7) Disconnect hose assembly (9) from male elbow (10).

(8) Place a drain pan under elbow (11).

(9) Disconnect hose assembly (12) from elbow (11). Allow oil to drain into drain pan.

(10) Remove motor pump assembly (13) from four motor mounts (8).

(11) Remove filler cap and drain any remaining oil into drain pan (See Figure 4-9).

(12) Using a wrench to hold male connector / anti-cavitation solenoid valve (1, Figure 4-9) stationary, loosen jam nut of elbow (2). Disconnect male connector / anti-cavitation solenoid valve (1) from elbow (2).

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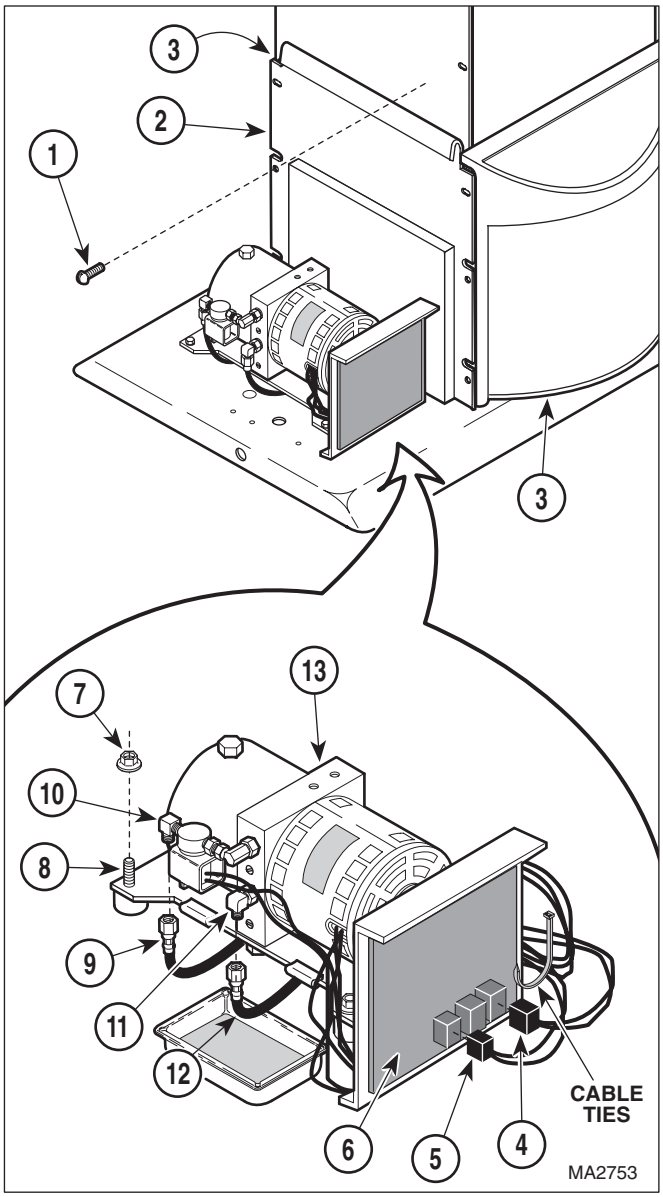

Figure 4-8. Motor Pump Removal / Installation

(13) Remove two screws (3), lockwashers (4), and motor base (5) from motor pump (6).

B. Installation

(1) Install motor base (5, Figure 4-9) on motor pump (6) and secure with two lockwashers (4) and screws (3).

(2) Coat threads of male connector (1) with pipe thread tape or sealant.

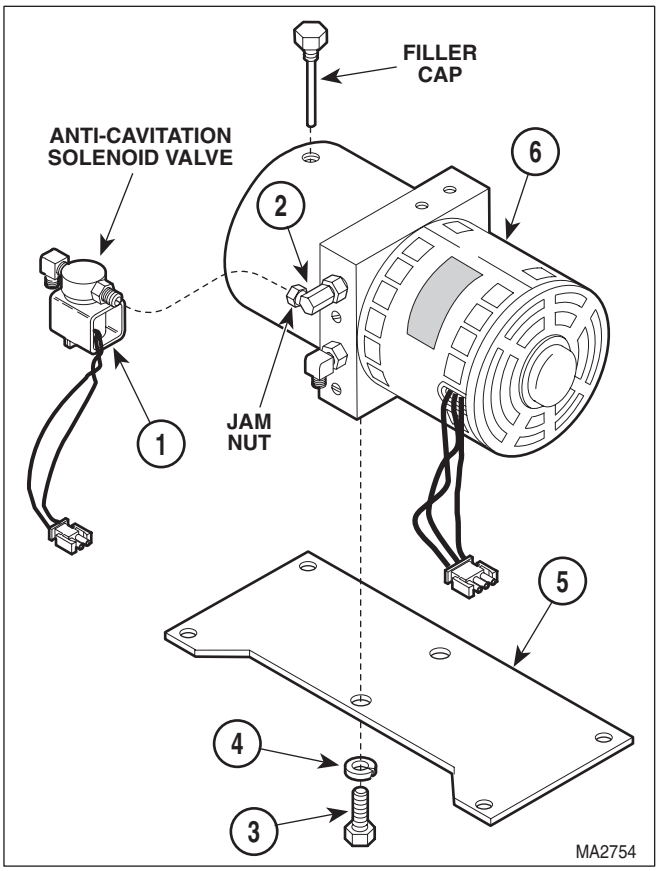

Figure 4-9. Motor Base Removal / Installation

(3) Connect male connector / anti-cavitation solenoid valve (1) to elbow (2) and secure by tightening jam nut.

(4) Install motor pump assembly (13, Figure 4-8) on four motor mounts (8) and secure with four nuts (7).

(5) Connect hose assembly (12) to elbow (11).

(6) Connect hose assembly (9) to male elbow (10).

(7) Connect anti-cavitation wire harness (5) and motor pump wire harness (4) to PC control board (6).

(8) Secure anti-cavitation wire harness (5) and motor pump wire harness (4) to other wires / wire harnesses with cable ties.

(9) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

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(10) Add oil to motor pump (Refer to para 4.3).

(11) Install motor cover assembly (Refer to para 4.2).

(12) Plug table power cord into outlet.

(13) Dispose of used oil in accordance with local regulations.

4.10 Motor Shaft Seal Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor pump assembly (Refer to para 4.9).

NOTE
Reservoir is difficult to remove. Use a screwdriver to pry reservoir off of manifold block, but make sure not to damage o-ring.

(3) Remove four screws (1, Figure 4-10) and reservoir (2) from manifold block (3).

(4) Remove magnet (4) from strainer (5).

(5) Remove four screws (6) and pump housing (7) from manifold block (3).

(6) Remove pump gear (8) and woodruff key (9) from shaft of rotor assembly (10).

(7) Remove four screws (11) and motor housing (12) from manifold block (3).

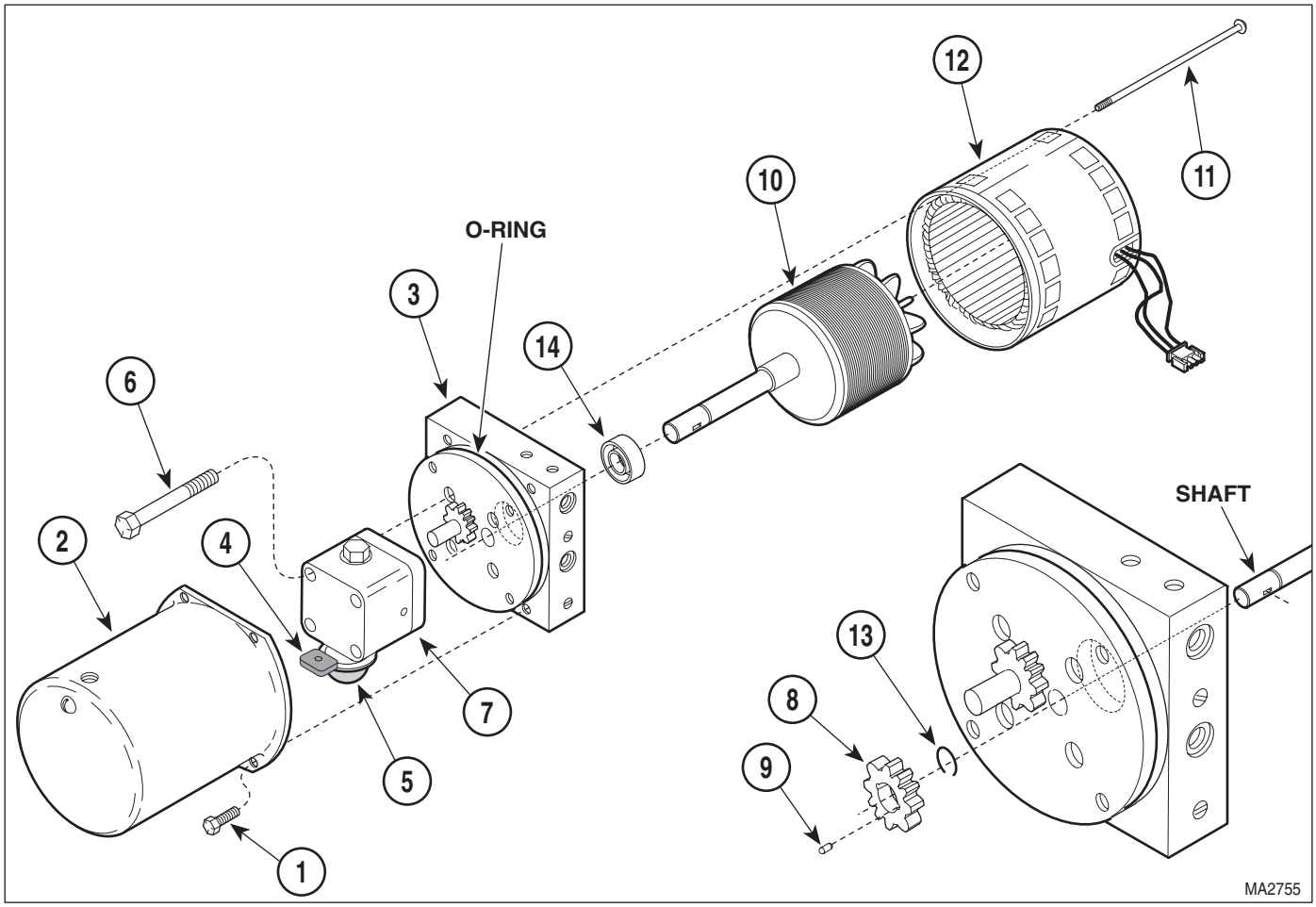

Figure 4-10. Motor Shaft Seal Removal / Installation

(8) Push rotor assembly (10) inward toward manifold block (3); then remove retaining ring (13) from end of rotor assembly shaft.

(9) Remove rotor assembly (10) from manifold block (3).

(10) Using a screwdriver, pry motor shaft seal (14) out of manifold block (3).

B. Installation

(1) Clean all metal shavings off of all components.

(2) Coat motor shaft seal (14) with vaseline or mineral oil.

CAUTION
Do not allow motor shaft seal to become cocked during installation or it will become impossible to install without damaging it.

(3) Using a hammer and 3/4 inch socket, carefully install motor shaft seal (14) in manifold block (3).

(4) Slide shaft of rotor assembly (10) thru manifold block (3) and secure in place by installing retaining ring (13) on end of rotor assembly shaft.

(5) Install motor housing (12) on manifold block (3) and secure with four screws (11).

(6) Install woodruff key (9) and pump gear (8) on shaft of rotor assembly (10).

(7) Install pump housing (7) on manifold block (3) and secure with four screws (6).

(8) Install magnet (4) on strainer (5).

(9) Make sure o-ring on manifold block (3) is present and clean. Coat o-ring with mineral oil.

NOTE
Strainer may get in way when reservoir is being installed. If so, rotate strainer out of the way.

(10) Install reservoir (2) on manifold block (3) and secure with four screws (1).

(11) Install motor pump (Refer to para 4.9).

(12) Plug table power cord into outlet.

4.11 Back Cylinder Removal / Installation

A. Removal

(1) Raise TILT UP and FOOT UP functions all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-11) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

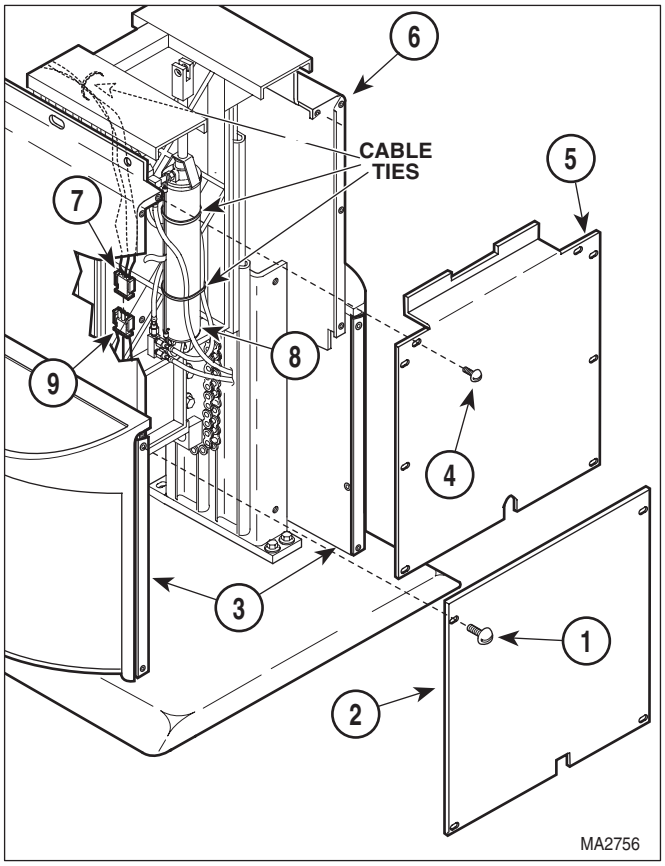

Figure 4-11. Back Cylinder Wire Harness Disconnection / Connection

(5) Cut three cable ties securing back cylinder wire harness (7) to tilt cylinder (8) and other hoses / wire harnesses.

(6) Disconnect back cylinder wire harness (7) from wire harness (9).

(7) Remove four screws (1, Figure 4-12) and back cover (2) from back weldment (3).

(8) Cut two cable ties which are securing hose assemblies (4 and 5) to back cylinder (6).

(9) While supporting back weldment (3), remove four e-rings (7), two clevis pins (8), and partially separate back cylinder (6) from cylinder brackets (9). Fold back section over onto seat section.

(10) Tag hose assemblies (4 and 5).

(11) Disconnect hose assembly (4) from back cylinder (6).

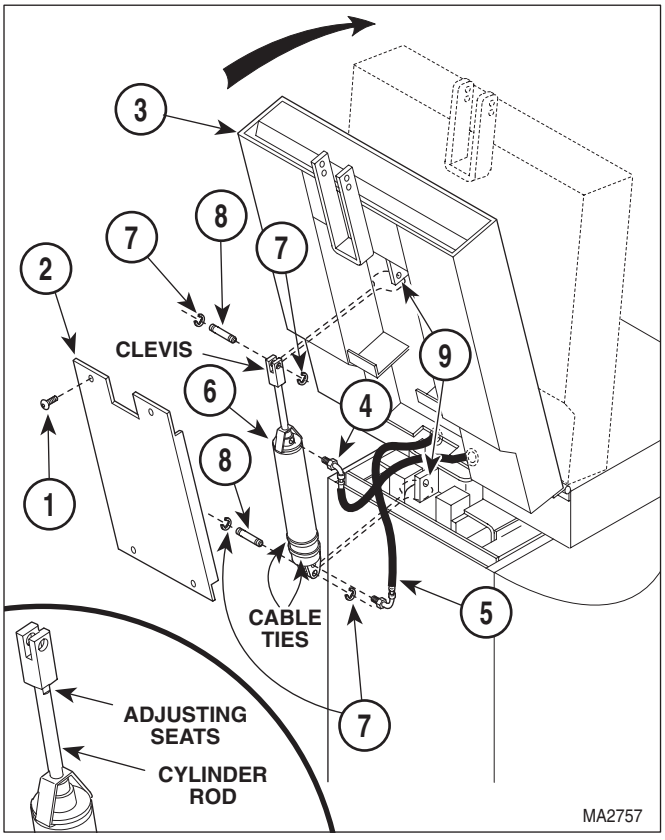

Figure 4-12. Back Cylinder Removal / Installation

(12) Disconnect hose assembly (5) from back cylinder (6); then remove back cylinder (6) from table.

B. Installation

NOTE
No sealant is required when connecting hose assemblies. The back cylinder has an o-ring in each port which seals the hose assemblies.

(1) Connect hose assembly (5, Figure 4-12) to back cylinder (6).

(2) Connect hose assembly (4) to back cylinder (6).

(3) Install back cylinder (6) on cylinder brackets (9) and secure with two clevis pins (8) and four e-rings (7).

(4) Secure hose assemblies (4 and 5) to back cylinder (6) with two cable ties.

(5) Route back cylinder wire harness (7, Figure 4-11) thru table.

(6) Connect back cylinder wire harness (7) to wire harness (9).

(7) Secure back cylinder wire harness (7) to tilt cylinder (8) and other hoses / wire harnesses with cable ties (approximately three).

(8) Install front inner shroud (5) on left and right hand outer shrouds (6) and secure with eight screws (4).

(9) Install front outer shroud (2) on left and right hand inner shrouds (3) and secure with four screws (1).

(10) Plug table power cord into outlet.

(11) Lower TILT function all the way down; then lower BACK DOWN function all the way down.

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CAUTION
TILT DOWN function must be completely lowered for following step. Failure to do so will result in incorrect adjustment.

(12) If back section (3, Figure 4-12) *is not* level with seat section when the BACK DOWN function is completely lowered, perform steps 13 thru 15. If back section *is* level with seat section when the BACK DOWN function is completely lowered, go to step 16.

CAUTION
The cylinder rod must be partially ex - tended before performing step 14. If the cylinder rod is fully extended or retracted when step 14 is being performed, damage to seals will occur.

(13) Raise BACK UP function up until cylinder rod is extended halfway.

(14) Place a wrench on adjusting seats of cylinder rod and use it to rotate cylinder rod to adjust clevis up or down as necessary.

(15) Repeat steps 11 thru 14 until back section (3) is level with seat section when BACK DOWN function is completely lowered.

(16) Install back cover (2) on back weldment (3) and secure with four screws (1).

(17) If necessary, add oil to motor pump (Refer to para 4.3).

(18) Install motor cover assembly (Refer to para 4.2).

4.12 Tilt Cylinder Removal / Installation

A. Removal

(1) If possible, lower TILT DOWN function all the way down.

(2) Raise FOOT UP function all the way up.

(3) Unplug table power cord from outlet.

(4) Remove four screws (1, Figure 4-13) and front outer shroud (2) from left and right hand outer shrouds (3).

(5) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(6) Cut cable tie which secures tilt cylinder wire harness (7) in place.

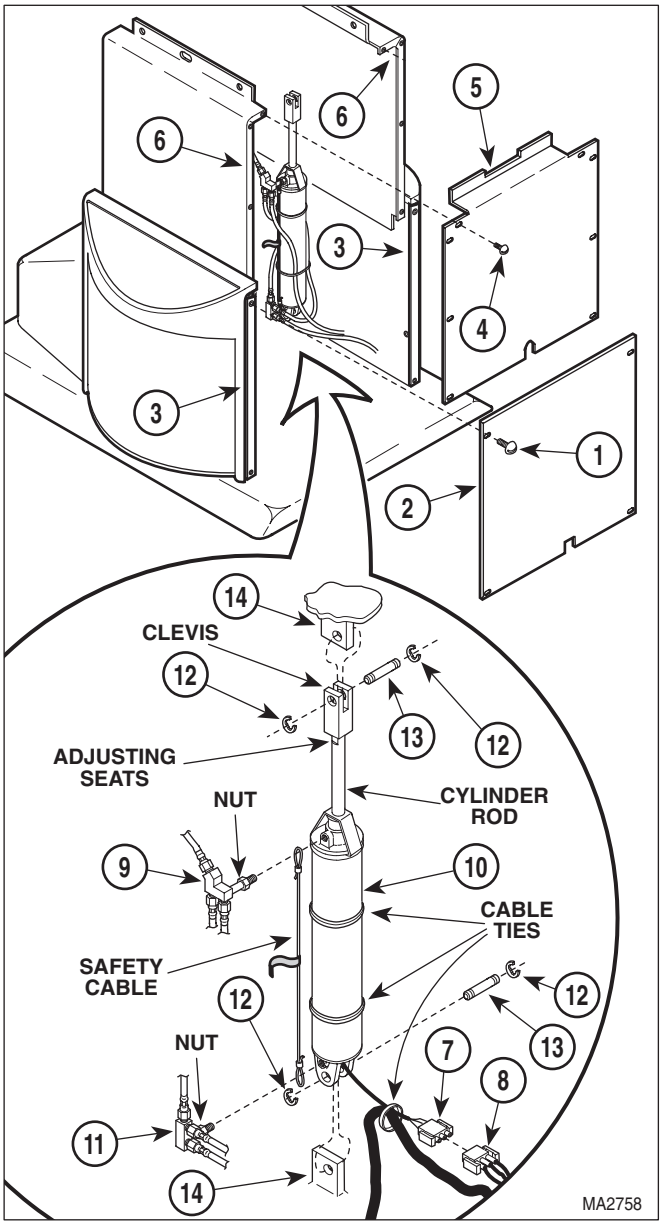

Figure 4-13. Tilt Cylinder Removal / Installation

(7) Disconnect tilt cylinder wire harness (7) from wire harness (8).

(8) Loosen nut; then disconnect return manifold (9) from rod end of tilt cylinder (10).

(9) Loosen nut; then disconnect power manifold (11) from base of tilt cylinder (10).

(10) Cut cable ties which secures hose assemblies and wire harnesses to tilt cylinder (10).

DANGER
The foot end of table top must be supported while removing tilt cylinder. Failure to do will allow table top to fall which could result in serious personal injury.

(11) While supporting foot end of table top, remove four e-rings (12), two clevis pins (13), and tilt cylinder (10) from brackets (14).

B. Installation

(1) Install tilt cylinder (10) on brackets (14) and secure with two clevis pins (13) and four e-rings (12).

DANGER
Make sure the safety cable is properly installed on the return and power manifolds. Failure to do so could result in serious personal injury to patient or table operator.

(2) Connect power manifold (11) to base of tilt cylinder (10) and secure by tightening nut.

(3) Connect return manifold (9) to rod end of tilt cylinder (10) and secure by tightening nut.

(4) Secure wire harnesses and hose assemblies to tilt cylinder (10) with cable ties.

(5) Connect tilt cylinder wire harness (7) to wire harness (8).

(6) Secure tilt cylinder wire harness (7) in place with a cable tie.

(7) Plug table power cord into outlet.

(8) Lower TILT DOWN function all the way down.

(9) If seat section *is not* level with floor when the TILT DOWN function *is* completely lowered, perform steps 10 thru 12. If seat section is level when the TILT DOWN function is completely lowered, go to step 13.

CAUTION
The cylinder rod must be partially ex - tended before performing step 11. If the cylinder rod is fully extended or retracted when step 11 is being performed, damage to seals will occur.

(10) Raise TILT UP function up until cylinder rod is extended halfway.

(11) Place a wrench on adjusting seats of cylinder rod and use it to rotate cylinder rod to adjust clevis up or down as necessary.

(12) Repeat steps 8 thru 12 until seat section is level when TILT DOWN function is completely lowered.

(13) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(14) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(15) If necessary, add oil to motor pump (Refer to para 4.3).

4.13 Base Cylinder Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-14) and back outer shroud (2) from left and right hand outer shrouds (3).

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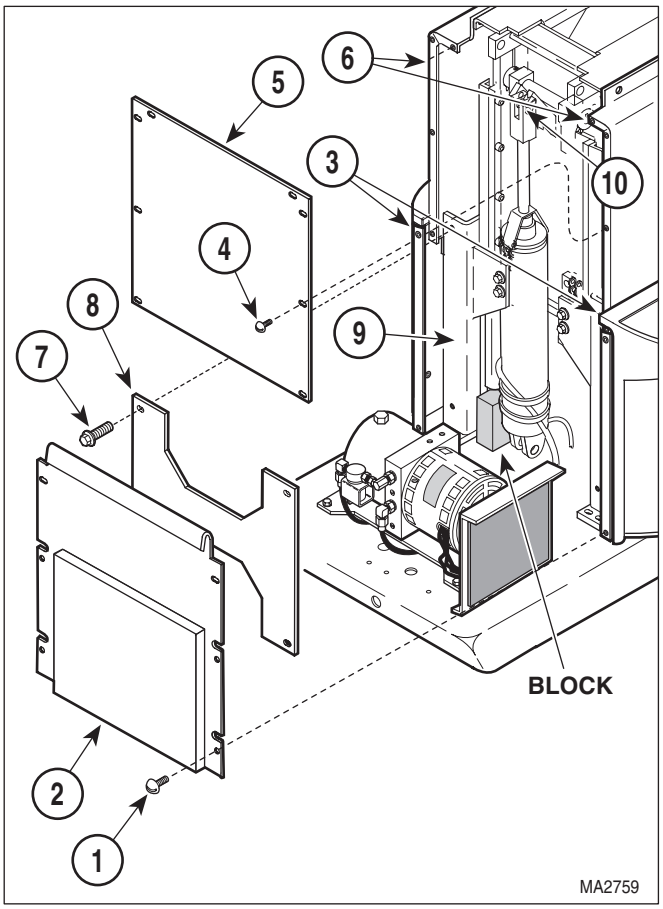

Figure 4-14. Base Cylinder Access

(4) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
The motor pump and PC control board can be carefully pushed out of the way to allow a socket and ratchet to be used on the bottom two screws (7).

(5) Remove four screws (7) and brace (8) from base slide assembly (9).

(6) Plug table power cord into outlet.

(7) If BASE DOWN function is operable, place a block under middle slide of base slide assembly (9). Then lower the BASE DOWN function until the middle slide of the base slide assembly is resting on block and pressure is off clevis pin (10). If BASE DOWN function is not operable, move table top to a horizontal position and place supports under each end of table.

(8) Disconnect base cylinder wire harness (1, Figure 4-15) from wire harness (2).

DANGER
Make sure table top is properly secured from lowering or tipping over when base cylinder is disconnected from table top. Clevis pin (4, Figure 4-15) should not have any weight on it if table top is supported properly. Failure to have table top properly secured could result in serious personal injury or death.

(9) Remove hitch pin clip (3) and clevis pin (4) from rod end of base cylinder (5).

(10) Remove hitch pin clip (6), clevis pin (7), and partially separate base cylinder (5) from brackets (8).

(11) Cut two cable ties securing hose assembly (9) to base cylinder (5).

(12) Disconnect hose assembly (9) from base cylinder (5).

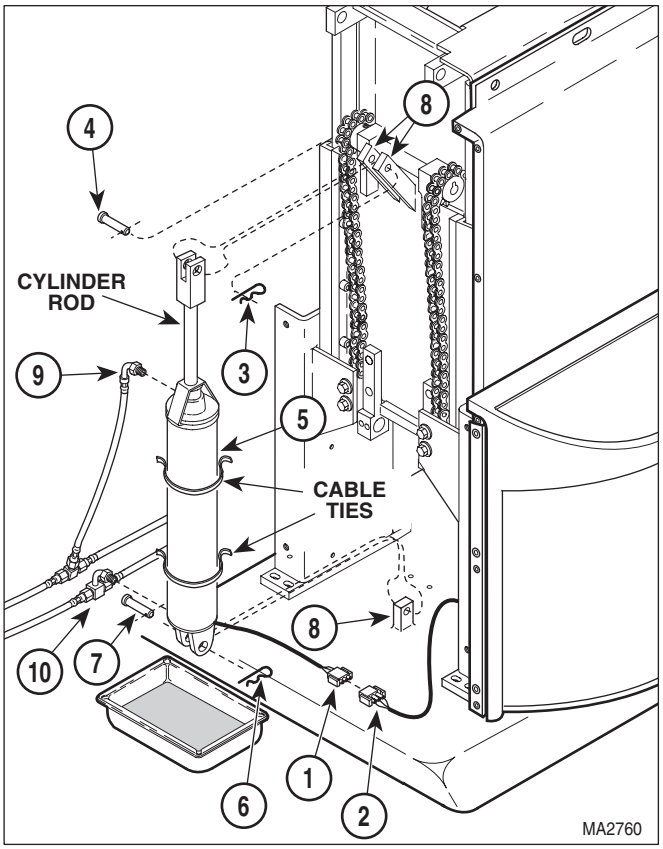

Figure 4-15. Base Cylinder Removal / Installation

(13) Place rags under base tee (10).

NOTE
When base tee is disconnected from base cylinder, oil will be free to flow out of the motor pump thru the base tee. Either be ready to install the new base cylinder or have drain pan and rags ready to catch the oil.

(14) Disconnect base tee (10) from base cylinder (5). Remove base cylinder from table.

B. Installation

(1) Position base cylinder (5, Figure 4-15) on table.

(2) Connect base tee (10) to base cylinder (5).

(3) Connect hose assembly (9) to base cylinder (5).

(4) Secure hose assembly (9) to base cylinder (5) with two cable ties.

(5) Install base cylinder (5) on brackets (8) and secure with clevis pins (4 and 7) and hitch pin clips (3 and 6).

(6) Connect base cylinder wire harness (1) to wire harness (2).

(7) Plug table power cord into outlet.

(8) See Figure 4-14. Raise BASE UP function slightly and remove block from under middle slide of base slide assembly (9) or remove supports from under table top.

(9) Lower BASE DOWN function all the way down.

(10) See Figure 4-16. If there *is not* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment and top of middle slide when the BASE DOWN function is completely lowered (it is especially important that the inner member weldment does not come into contact with the top of the middle slide), perform steps 11 thru 13. If gap is correct when the BASE DOWN function is completely lowered, go to step 14.

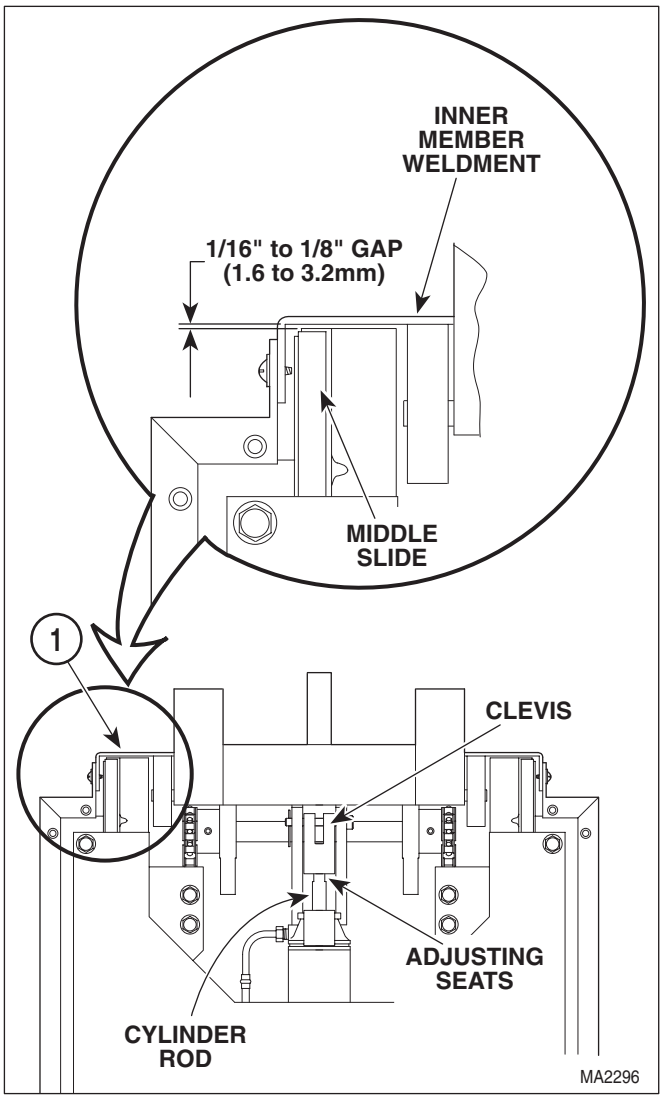

Figure 4-16. Base Cylinder Clevis Adjustment

CAUTION
The cylinder rod must be partially ex - tended before performing step 12. If the cylinder rod is fully extended or retracted when step 12 is being performed, damage to seals will occur.

(11) Raise BASE UP function up until cylinder rod is extended halfway.

(12) Place a wrench on adjusting seats of cylinder rod and use it to rotate cylinder rod to adjust clevis up or down as necessary.

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(13) Repeat steps 9 thru 13 until there *is* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment and middle slide of base slide assembly when the BASE DOWN function is completely lowered.

(14) Install brace (8, Figure 4-14) on base slide assembly (9) and secure with four screws (7).

(15) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(16) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(17) If necessary, add oil to motor pump (Refer to para 4.3).

(18) Install motor cover assembly (Refer to para 4.2).

4.14 Foot Cylinder Removal / Installation

A. Removal

(1) If possible, raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-17) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Cut cable ties securing foot cylinder wire harness (1, Figure 4-18).

(6) Remove screw (2) and wire clip (3) securing foot cylinder wire harness (1) and hose (4) to seat weldment (5).

(7) Disconnect foot cylinder wire harness (1) from wire harness (6).

(8) Cut cable ties securing hose assemblies to foot cylinder (7).

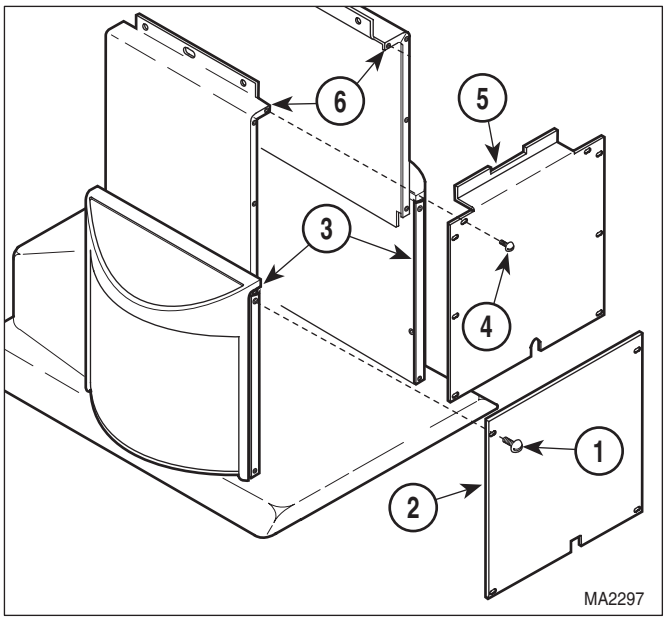

Figure 4-17. Shrouds Removal / Installation

(9) Disconnect hose assembly (4) from foot cylinder (7).

(10) Disconnect hose assembly (8) from foot cylinder (7).

(11) Support foot section of table top and then remove hitch pin clip (9), clevis pin (10), two e-rings (11), clevis pin (12), and foot cylinder (7) from brackets (13).

B. Installation

(1) Install foot cylinder (7, Figure 4-18) on brackets (13) and secure with clevis pin (12), two e-rings (11), clevis pin (10), and hitch pin clip (9).

(2) Connect hose assembly (8) to foot cylinder (7).

(3) Connect hose assembly (4) to foot cylinder (7).

(4) Secure hose assemblies (4 and 8) to foot cylinder (7) and each other with cable ties.

(5) Connect foot cylinder wire harness (1) to wire harness (6).

(6) Secure foot cylinder wire harness (1) and hose (4) to seat weldment (5) with wire clip (3) and screw (2).

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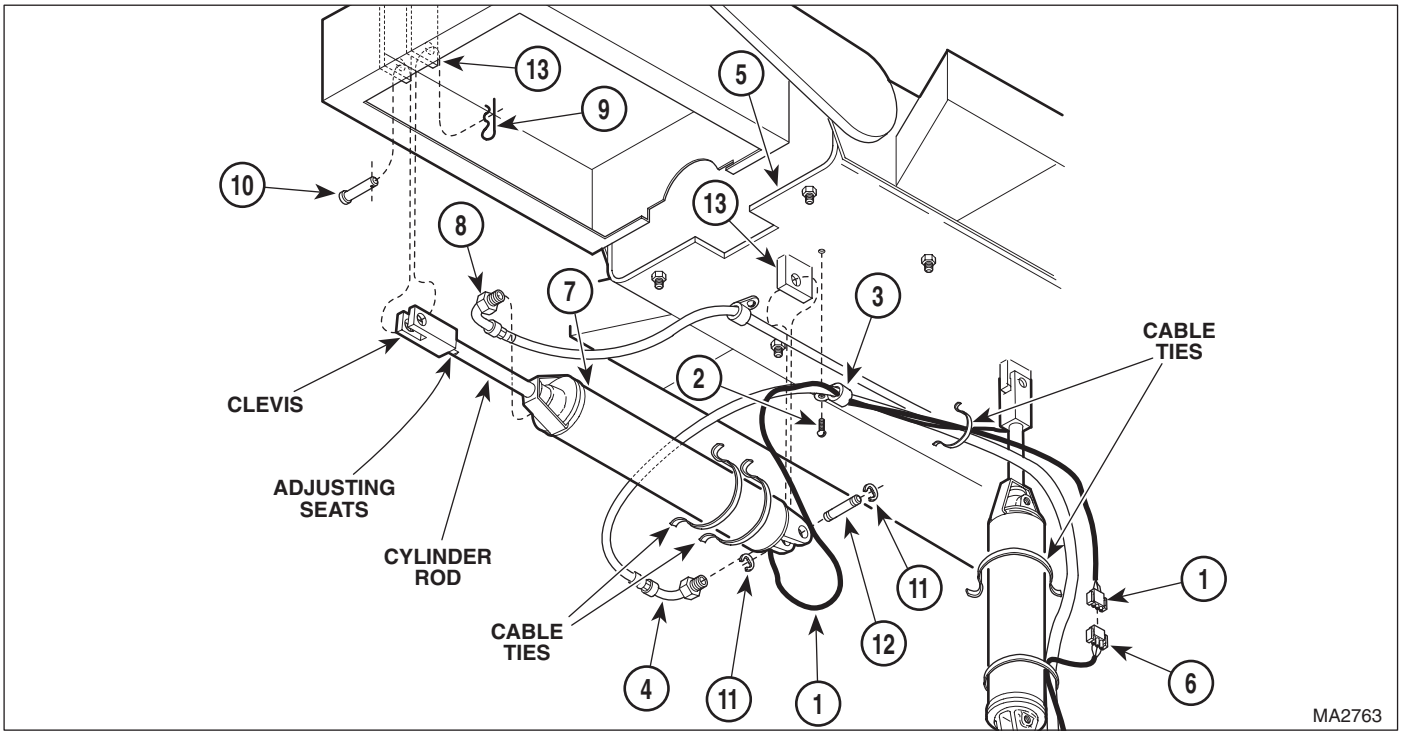

Figure 4-18. Foot Cylinder Removal / Installation

(7) Secure foot cylinder wire harness (1) as necessary with cable ties.

(8) Plug table power cord into outlet.

(9) Raise FOOT UP function all the way up.

(10) If foot section *is not* level with seat section when FOOT UP function is completely raised, perform steps 11 thru 13. If foot section *is* level with seat section when FOOT UP function is completely raised, go to step 14.

CAUTION

The cylinder rod must be partially ex - tended before performing step 12. If the cylinder rod is fully extended or retracted when step 12 is being performed, damage to seals will occur.

(11) Lower FOOT DOWN function until cylinder rod is extended halfway.

(12) Place a wrench on adjusting seats of cylinder rod and use it to rotate cylinder rod to adjust clevis up or down as necessary.

(13) Repeat steps 9 thru 13 until foot section is level with seat section when FOOT UP function is completely raised.

(14) Install any cable ties removed during removal.

(15) Install front inner shroud (5, Figure 4-17) on left and right hand inner shrouds (6) and secure with eight screws (4).

(16) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(17) If necessary, add oil to motor pump (Refer to para 4.3).

(18) Plug table power cord into outlet.

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4.15 Capacitors Removal / Installation

A. Removal

(1) If possible, raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-19) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) If necessary to gain access to capacitors, remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Cut cable ties securing wires to capacitors (7 and 13).

(6) Using a screwdriver, pry tab of capacitor mounting bracket (8) upward and remove capacitor (7) from capacitor mounting bracket.

(7) Remove capacitor cap (9) from capacitor (7).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(8) Discharge capacitor (7).

(9) Disconnect wires (10 and 11) from terminals of capacitor (7).

(10) Using a screwdriver, pry tab of capacitor mounting bracket (12) upward and remove capacitor (13) from capacitor mounting bracket.

(11) Remove capacitor cap (14) from capacitor (13).

(12) Discharge capacitor (13).

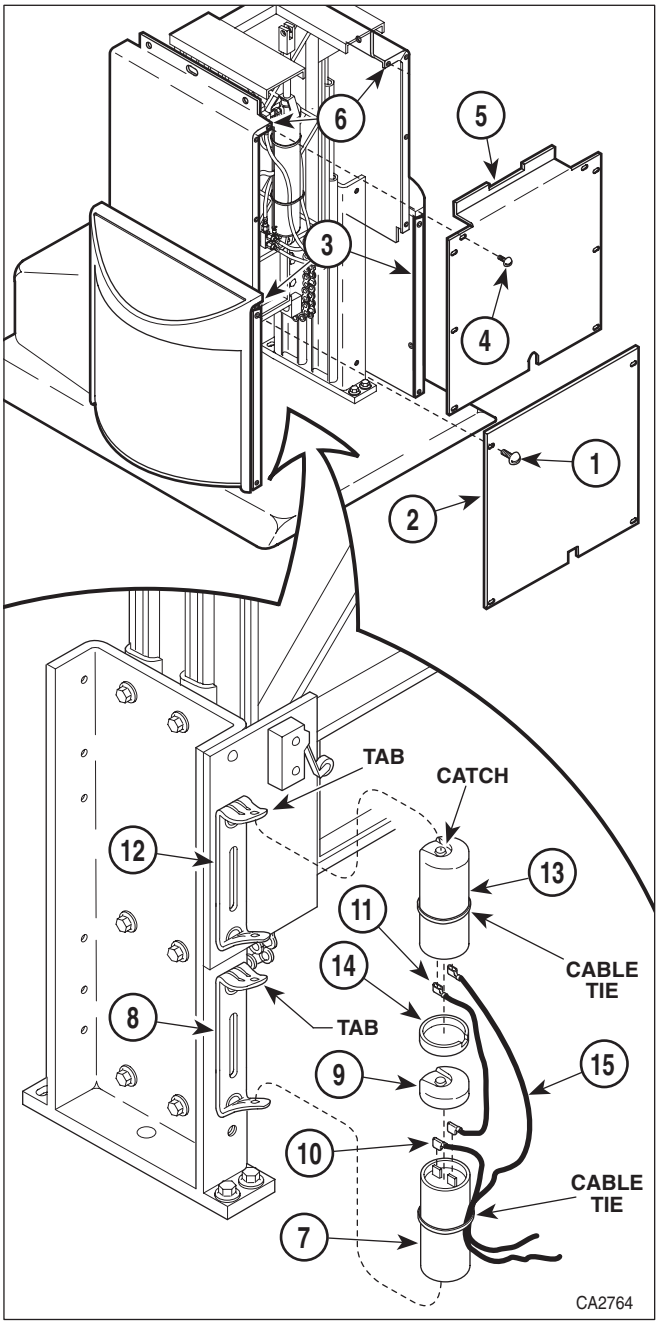

Figure 4-19. Capacitors Removal / Installation

(13) Disconnect wires (11 and 15) from terminals of capacitor (13).

B. Installation

(1) Connect capacitor wires (11 and 15) to terminals of capacitor (13).

(2) Install capacitor cap (14) on capacitor (13).

(3) Position bottom of capacitor (13) on capacitor mounting bracket (12) and then push the top of the capacitor in. Using a screwdriver, force tab of capacitor mounting bracket (12) down over catch.

(4) Connect capacitor wires (10 and 11) to terminals of capacitor (7).

(5) Install capacitor cap (9) on capacitor (7).

(6) Position bottom of capacitor (7) on capacitor mounting bracket (8) and then push the top of the capacitor in. Using a screwdriver, force tab of capacitor mounting bracket (8) down over catch.

(7) Install cable ties to secure wires to capacitors (7 and 13).

(8) If removed, install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(9) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(10) Plug table power cord into outlet.

4.16 PC Control Board Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Tag and disconnect three modular cords (1, Figure 4-20) from PC control board (2).

(4) Disconnect five wire harnesses (3) from PC control board (2).

(5) Tag and disconnect three wires (4) from PC control board (2) by loosening three terminal screws (5).

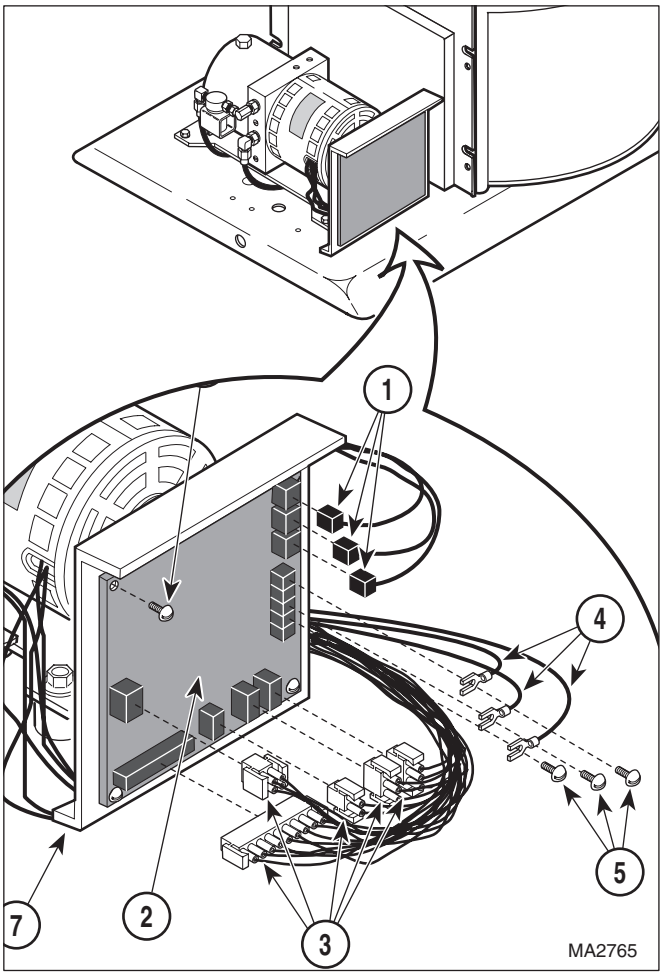

Figure 4-20. PC Control Board Removal / Installation

(6) Remove four screws (6) and PC control board (2) from PC control mount panel (7).

B. Installation

(1) Install PC control board (2) on PC control mount panel (7) and secure with four screws (6).

(2) Connect three wires (4) to PC control board (2) with three terminal screws (5).

(3) Connect five wire harnesses (3) to PC control board (2).

(4) Connect three modular cords (1) to PC control board (2).

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(5) Install motor cover assembly (Refer to para 4.2).

(6) Plug table power cord into outlet.

4.17 Hand Inlet PC Board Removal / Installation

A. Removal

NOTE
The hand inlet PC board on patient's left side of table is shown being removed. The hand inlet PC board on patient's right side of table is removed in same way.

(1) If connected, disconnect hand control coil cord (1, Figure 4-21) from connector of hand inlet PC board (2).

(2) Using an index finger, reach thru access hole and push outward on side panel insert (3) until the bottom edge of side panel insert can be grasped by the other hand. Pull outward on bottom of side panel insert (3) until it "pops" off of side panel (4).

(3) Remove four screws (5) and partially separate side panel (4) from outer shroud (6).

(4) Remove screw (7), lockwasher (8), and ground wire (9) from outer shroud (6).

(5) Disconnect modular cord (10) from hand inlet PC board (2).

(6) Remove two nuts (11) and hand inlet PC board (2) from studs (12).

B. Installation

(1) Install hand inlet PC board (2) on studs (12) and secure with two nuts (11).

(2) Connect modular cord (10) to hand inlet PC board (2).

(3) Install ground wire (9) on outer shroud (6) and secure with lockwasher (8) and screw (7).

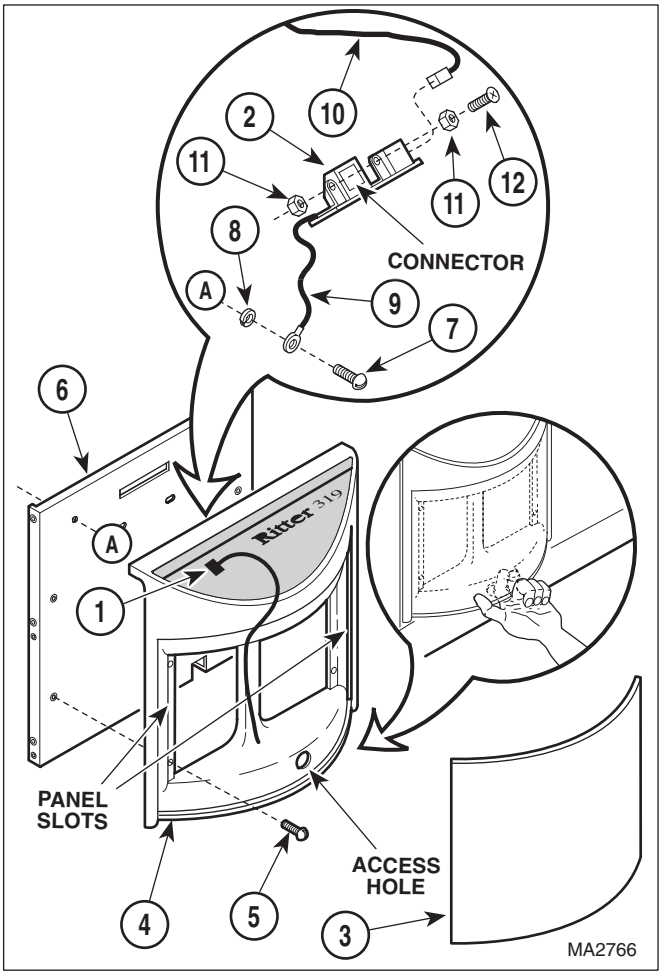

Figure 4-21. Hand Inlet PC Board Removal / Installation

(4) Install side panel (4) on outer shroud (6) and secure with four screws (5).

(5) Insert one end of side panel insert (3) into one of the panel slots on side panel (4). Flex side panel insert in the middle and then insert free end of side panel insert into remaining panel slot on other end of side panel. Work side panel insert into proper position.

(6) Connect hand control coil cord (1) to connector of hand inlet PC board (2).

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4.18 Foot Inlet PC Board Removal / Installation

A. Removal

(1) Raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) If connected, disconnect foot control coil cord (1, Figure 4-22) from foot inlet PC board (2).

(4) Remove four screws (3) and front outer shroud (4) from left and right hand outer shrouds (5).

(5) Disconnect modular cord (6) from foot inlet PC board (2).

(6) Remove screw (7), starwasher (8), and ground wire (9) from base weldment (10).

(7) Remove two screws (11) and foot inlet PC board (2) from base weldment (10).

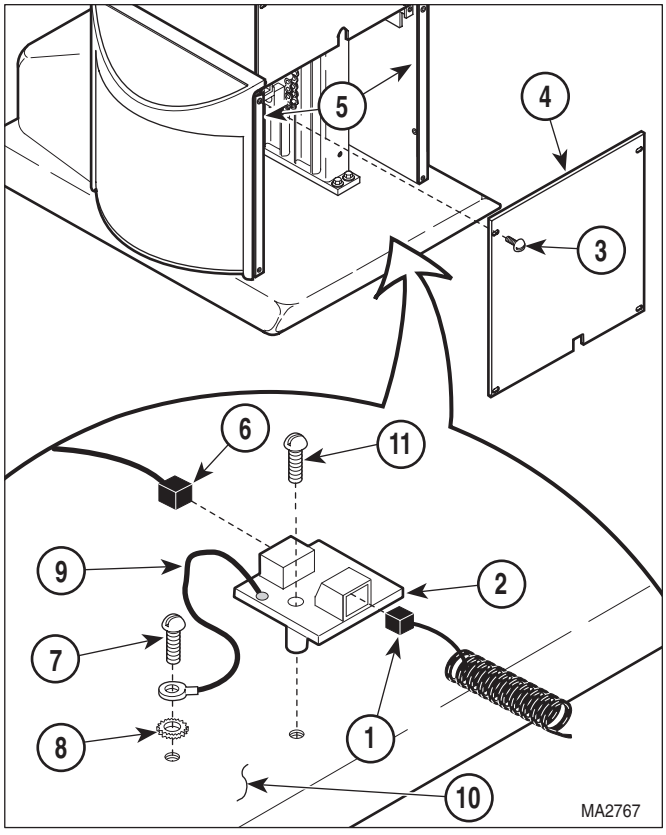

Figure 4-22. Foot Inlet PC Board Removal / Installation

B. Installation

(1) Install foot inlet PC board (2) on base weldment (10) and secure with two screws (11).

(2) Install ground wire (9) on base weldment (10) and secure with starwasher (8) and screw (7).

(3) Connect modular cord (6) to foot inlet PC board (2).

(4) Install front outer shroud (4) on left and right hand outer shrouds (5) and secure with four screws (3).

(5) Connect foot control coil cord (1) to foot inlet PC board (2).

(6) Plug table power cord into outlet.

4.19 Pan Safety Limit Switch Removal / Installation (Optional On Some Units)

A. Removal

NOTE
It may be necessary to remove upholstered leg rest in order to remove upholstered seat section. If so, refer to para 4.30.

(1) Remove upholstered seat section (Refer to steps 6 thru 8 of para 4.30A).

(2) Remove two screws (1, Figure 4-23), lockwashers (2), washers (3), and partially separate bracket (4) as an assembly from seat weldment (5).

(3) Remove two nuts (6), lockwashers (7), screws (8), and partially separate pan safety limit switch (9) from bracket (4).

(4) Disconnect two wires (10) from terminals of pan safety limit switch (9).

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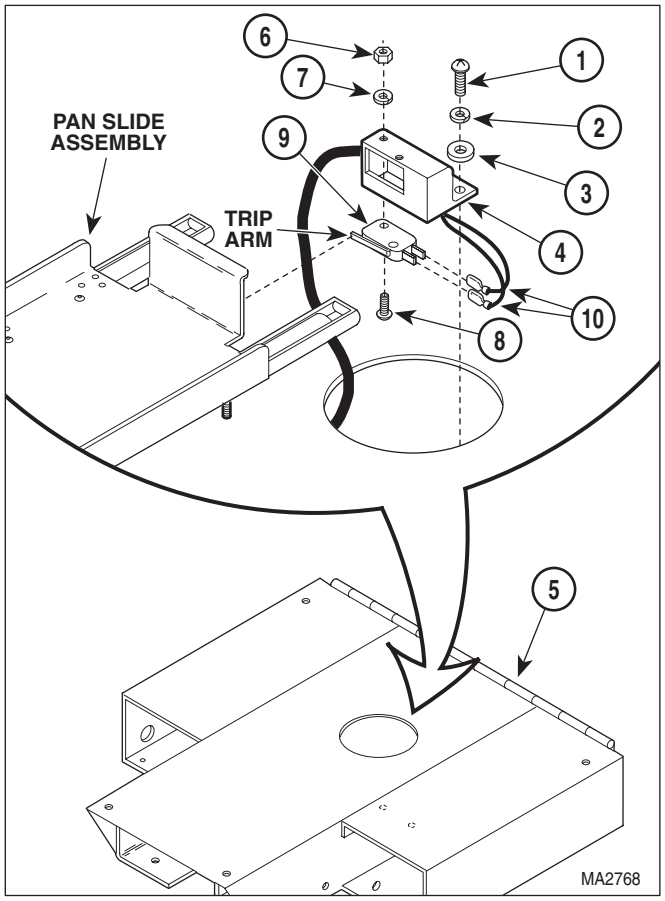

Figure 4-23. Pan Safety Limit Switch Removal / Installation

B. Installation

(1) Connect two wires (10) to terminals of pan safety limit switch (9); one to normally open (N.O.) terminal and one to common (COM.) terminal.

(2) Install pan safety limit switch (9) in bracket (4) and secure with two screws (8), lockwashers (7), and two nuts (6).

(3) Install bracket (4) on seat weldment (5) and secure with two washers (3), lockwashers (2), and screws (1). Do not tighten screws fully.

(4) Push pan slide assembly inward until it "locks" into its fully stowed position.

(5) Slide bracket (4) toward rear panel of pan slide assembly until trip arm of pan safety limit switch (9) is firmly tripped by pan slide assembly. Tighten two screws (1).

(6) Install upholstered seat section (Refer to step 6 of para 4.30B). If removed, install upholstered leg section.

4.20 Base Down Limit Switch Removal / Installation / Adjustment

A. Removal

(1) Raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-24) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Tag and disconnect two wires (7) from terminals of base down limit switch (8).

(6) Remove two nuts (9), lockwashers (10), screws (11), and base down limit switch (8) from auto return bracket (12).

B. Installation

(1) Install base down limit switch (8) on auto return bracket (12) and secure with two screws (11), lockwashers (10), and two nuts (9). Do not tighten screws.

(2) Connect two wires (7) to terminals of base down limit switch (8); one to normally open (N.O.) terminal and one to common (COM.) terminal.

C. Adjustment

(1) If not already done, perform steps 1 thru 4 of removal section of this paragraph to gain access to base down limit switch.

NOTE
If the motor pump continues to run after the AUTO RETURN function has lowered the table top all the way down, the base down limit switch is out of adjustment. Adjust limit switch so its trip arm contacts the trip plate before the table top is completely lowered, stopping the down function.

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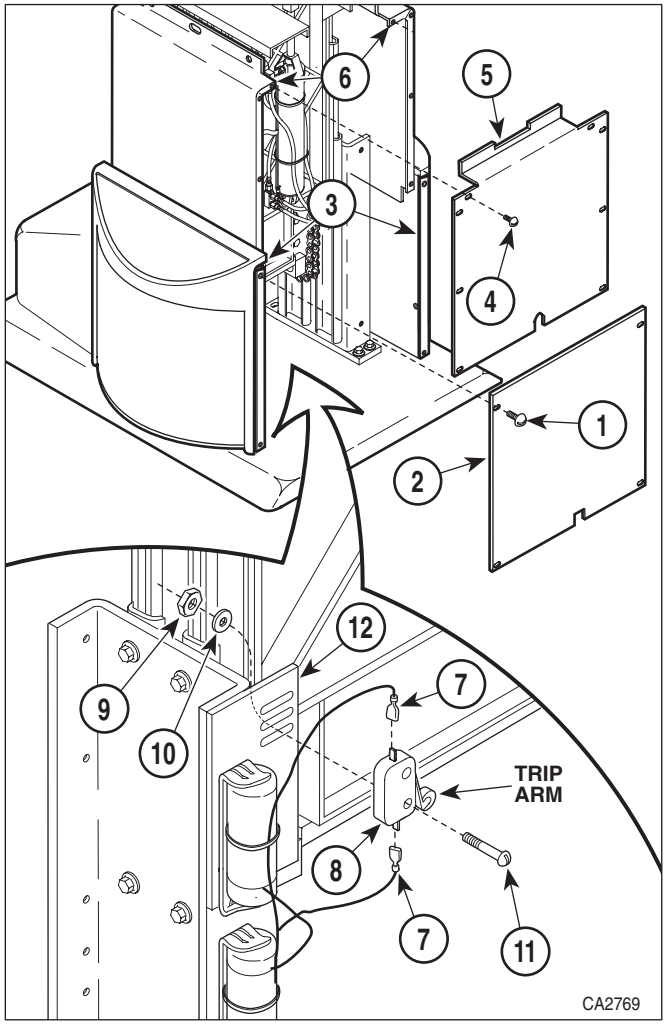

Figure 4-24. Base Down Limit Switch Removal / Installation

(2) Loosen two nuts (9) and adjust base down limit switch (8) as necessary so trip arm of base down limit switch is getting tripped by trip plate just before the AUTO RETURN function lowers the table top all the way down.

DANGER

Do not touch any bare wires or electrical shock could occur. Do not place hands or head inside base area of table while it is being lowered. Failure to follow these safety precautions could result in serious personal injury or death.

(3) Plug power cord into outlet.

(4) Raise TABLE UP function all the way up.

(5) Press AUTO RETURN "RETURN" button.

(6) If the motor pump automatically shuts off when AUTO RETURN function stops, base down limit switch is adjusted properly. If the motor pump continues to run after table top is completely lowered, repeat steps 2 thru 6 again.

(7) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(8) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

4.21 Chain Assembly Adjustment

A. Adjustment

(1) Raise BASE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-25) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Loosen four screws (7).

CAUTION

Adjust chains so they are tight, yet have a slight spring back. Also, adjust chains so there is an equal amount of tension on each chain. Failure to do so will result in chains loosening earlier and uneven wear.

(6) Insert a pry bar or large screwdriver into adjustment gap and pry downward on idler adjustment weldment (8) until chains (9) are tight, yet have a slight spring back. Tighten four screws (7).

(7) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

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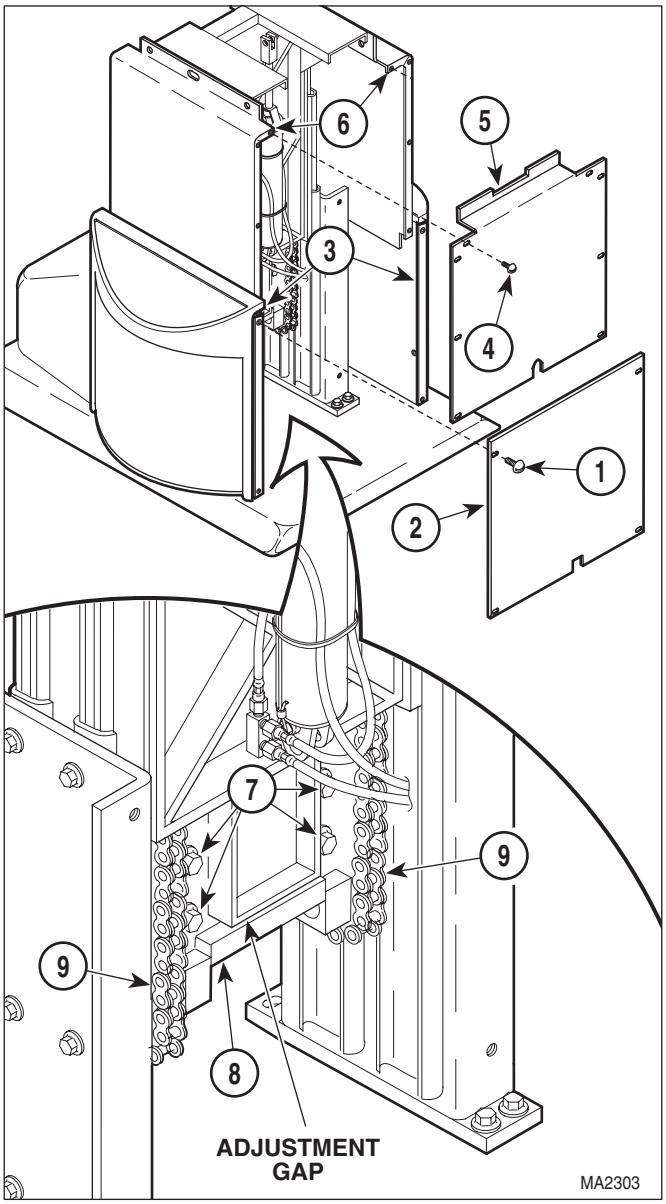

Figure 4-25. Chain Assembly Adjustment

(8) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Plug table power cord into outlet.

4.22 Base Slide Assembly Removal / Installation

A. Removal

(1) If possible, raise BASE UP function all the way up.

(2) Move the back, seat, and foot sections of the table top to a horizontal position.

(3) Unplug table power cord from outlet.

(4) Remove motor cover assembly (Refer to para 4.2).

(5) Remove four screws (1, Figure 4-26) and back outer shroud (2) from left and right hand outer shrouds (3).

(6) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

(7) Remove four screws (7) and front outer shroud (8) from left and right hand outer shrouds (3).

(8) Remove eight screws (9) and front inner shroud (10) from left and right hand inner shrouds (6).

(9) Remove six screws (11), washers (12), and left and right hand inner shrouds (6) from base slide assembly (13).

(10) Remove six screws (14) and partially remove left and right hand outer shrouds (3) from base weldment (15).

DANGER

The supports must be capable of holding up table top after table top is disconnected from base slide assembly and the base slide assembly is removed. Failure to support table top properly could result in table top falling out-of-control which could result in serious personal injury or death.

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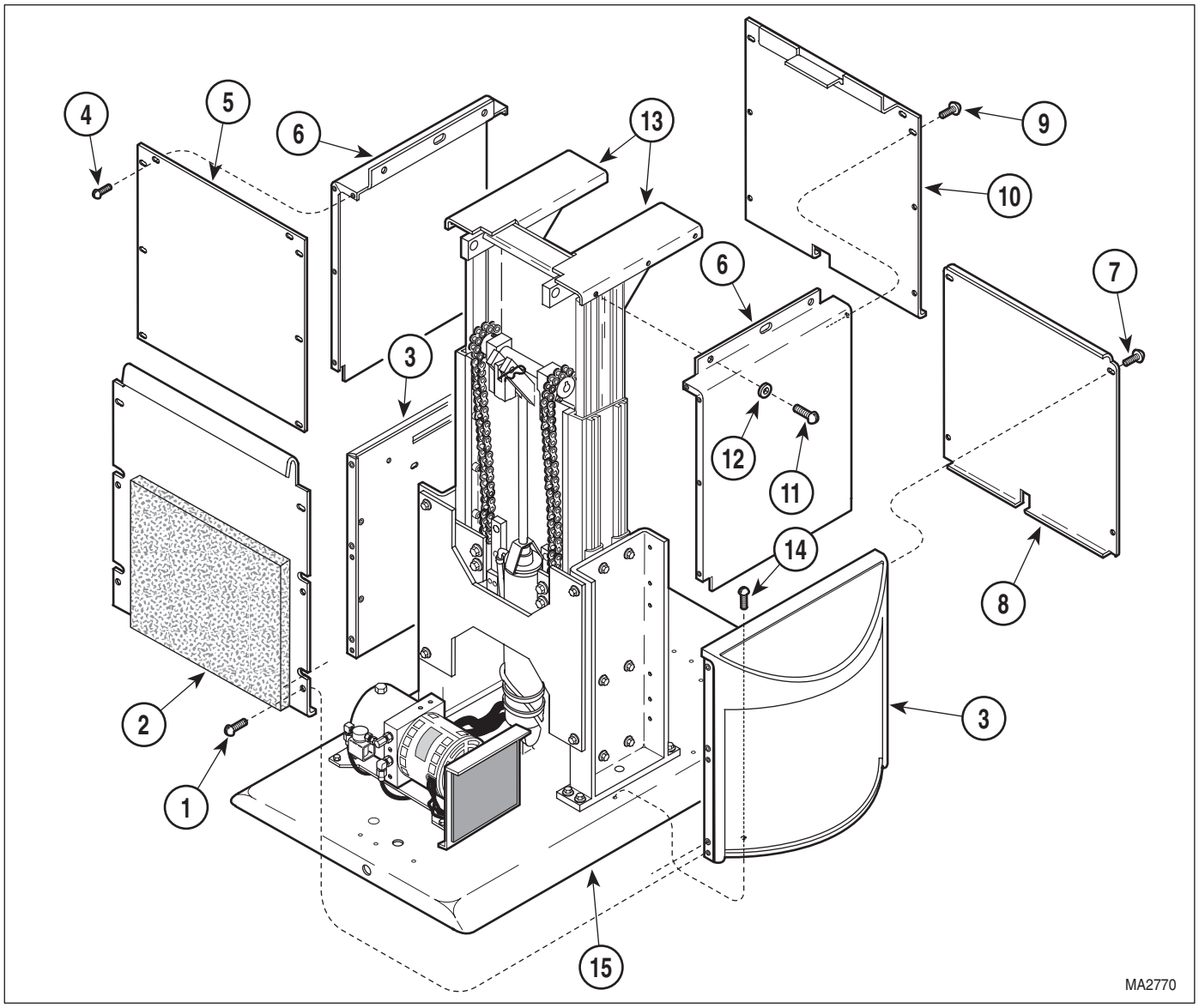

Figure 4-26. Shrouds Removal / Installation

(11) Place supports (See Figure 4-27) under foot section and head section of table top, making sure weight of table top is being supported by supports. If necessary, plug table power cord into outlet and lower table top onto supports. Unplug table power cord from outlet.

(12) Remove two e-rings (1, Figure 4-27), clevis pin (2), and separate tilt cylinder (3) from bracket (4).

(13) Loosen four setscrews (5). Remove two tilt pivot pins (6) from base slide assembly (7).

DANGER

Make sure table top is properly supported for the following step. Table top will rest only on supports after this step. Also do not touch any wires inside of table when power cord is plugged in. This could result in electrical shock. Failure to comply with this warning could result in serious personal injury or death.

(14) Plug table power cord into outlet. Lower BASE DOWN function all the way down. Unplug table power cord from outlet.

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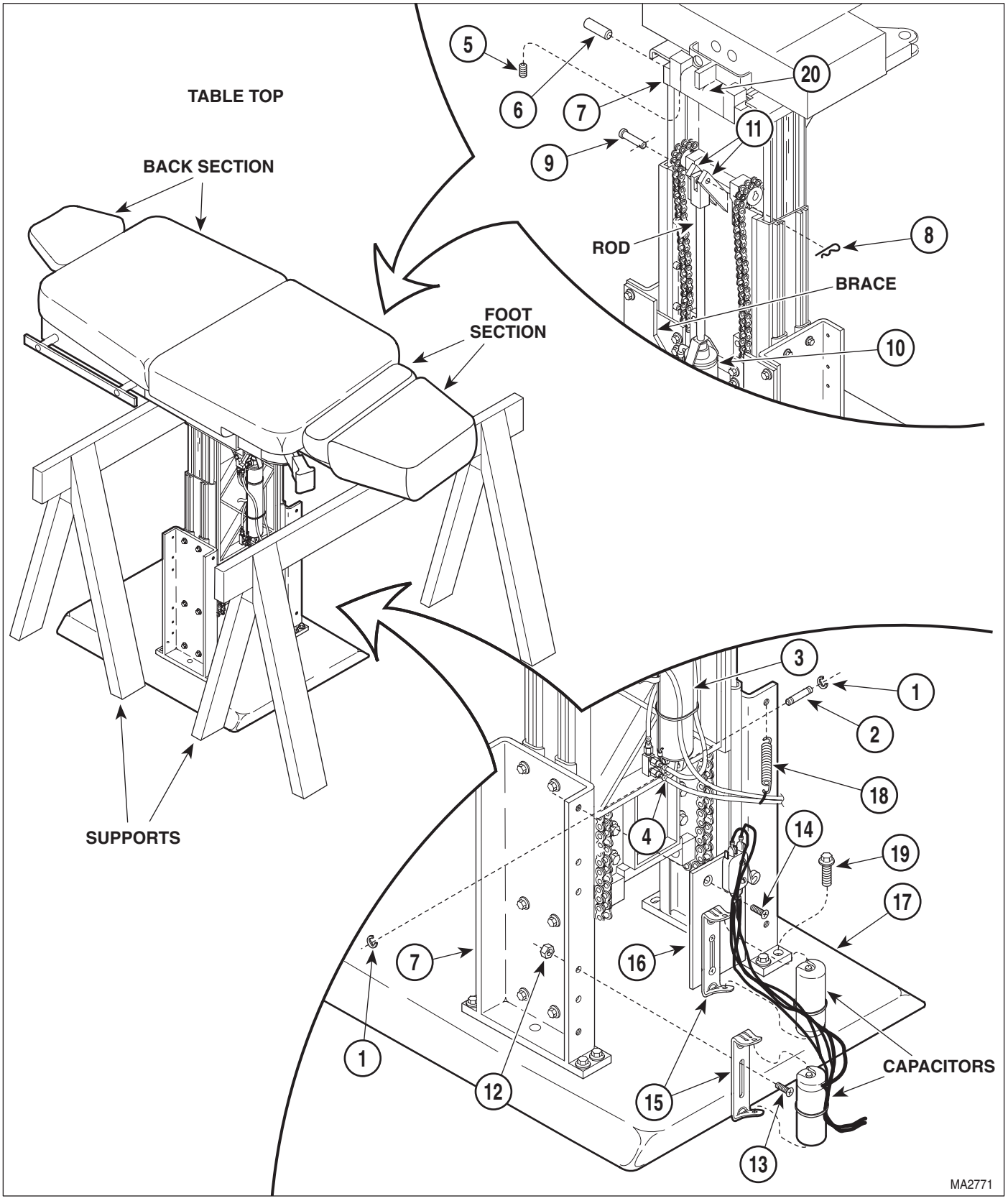

Figure 4-27. Base Slide Assembly Removal / Installation

DANGER
Make sure base slide assembly is fully retracted (collapsed) before disconnecting base cylinder. Failure to do so will result in base slide assembly collapsing after base cylinder is disconnected which could result in serious personal injury.

(15) Remove hitch pin clip (8), clevis pin (9), and separate rod of base cylinder (10) from bracket (11).

(16) Remove capacitors (Refer to para 4.15).

(17) Remove five nuts (12), four screws (13), one screw (14), two capacitor mounting brackets (15) and partially separate auto return bracket (16) from base slide assembly (7). Lay auto return bracket assembly out of the way on base weldment (17).

(18) Disconnect spring (18) from base slide assembly (7).

(19) Remove eight screws (19) from base slide assembly (7).

NOTE
If necessary, remove four screws and brace to allow base slide assembly to be pulled over base cylinder.

(20) With the help of an assistant, remove base slide assembly (7) from base weldment (17).

B. Installation

(1) With the help of an assistant, install base slide assembly (7, Figure 4-27) on base weldment (17), making sure base cylinder (10) gets inserted between brace and base slide assembly.

(2) Secure base slide assembly (7) on base weldment (17) with eight screws (19).

(3) Connect spring (18) to base slide assembly (7).

(4) Install auto return bracket (16) and two capacitor mounting brackets (15) on base slide assembly (7) and secure with one screw (14), four screws (13), and five nuts (12).

(5) Install capacitors (Refer to para 4.15).

(6) Install rod end of base cylinder (10) on bracket (11) and secure with clevis pin (9) and hitch pin clip (8).

NOTE
Install beveled edge of tilt pivot pins first. The beveled edge allows the tilt pivot pins to be started more easily.

(7) Raise BASE UP function until base slide assembly (7) is aligned with seat weldment (20). Secure base slide assembly to seat weldment with two tilt pivot pins (6).

(8) Secure tilt pivot pins (6) in place by tightening four setscrews (5).

(9) Install base of tilt cylinder (3) on bracket (4) and secure with clevis pin (2) and two e-rings (1).

(10) Remove supports from under head section and foot section of table top.

(11) If necessary, adjust base down limit switch (Refer to para 4.20).

(12) Install left and right hand outer shrouds (3, Figure 4-26) on base weldment (15) and secure with six screws (14).

(13) Install left and right hand inner shrouds (6) on base slide assembly (13) and secure with six washers (12) and screws (11).

(14) Install front inner shroud (10) on left and right hand inner shrouds (6) and secure with eight screws (9).

(15) Install front outer shroud (8) on left and right hand outer shrouds (3) and secure with four screws (7).

(16) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(17) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

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(18) Install motor cover assembly (Refer to para 4.2).

(19) Plug table power cord into outlet.

4.23 Headrest Adjustment

A. Adjustment

(1) Unlock upper lock handle (See Figure 4-28).

(2) Loosen setscrew (1, Figure 4-28).

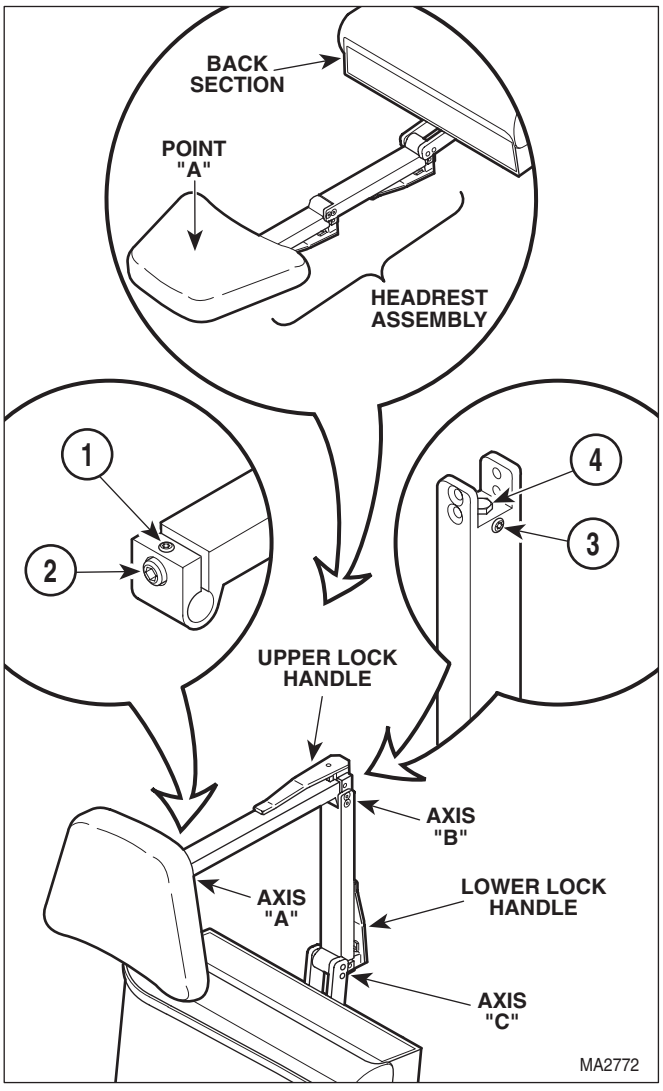

Figure 4-28. Headrest Adjustment

(3) Tighten adjusting screw (2) slightly; then lock upper lock handle. Repeat this step until axis A and B have the strongest possible holding power, but operation of upper lock handle is not too difficult.

(4) Tighten setscrew (1).

(5) Unlock lower lock handle.

(6) Loosen setscrew (3).

(7) Tighten adjusting screw (4) slightly; then lock lower lock handle. Repeat this step until axis C has the strongest possible holding power, but operation of lower lock handle is not too difficult.

(8) Tighten setscrew (3).

(9) Lower BACK DOWN function all the way down.

(10) Position headrest assembly as shown in TEST SETUP.

NOTE
The maximum force required to unclamp a locking handle should be 17 lbs (7.7 kg) and the maximum force required to clamp a locking handle should be 35 lbs (15.8 kg).

(11) Place a 45 lb (20.4 kg) weight on headrest assembly at Point A.

DANGER
Failure to adjust headrest assembly to specifications could result in a failure during a procedure. This could cause severe personal injury to a patient or the need to terminate the procedure.

(12) Observe. The headrest assembly should support the test weight without drifting downward. If not, repeat entire adjustment procedure. If headrest assembly does not meet test standards, do not use headrest assembly.

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4.24 Headrest Handles Handle Stops Adjustment

A. Adjustment

(1) Loosen nut (1, Figure 4-29).

(2) Push on upper lock handle until it reaches a point where the upper lock handle wants to lock itself by going over center; then allow upper lock handle to go over center a few degrees. Hold the upper lock handle in this position and adjust stop screw (2) so the upper lock handle will be forced to stop in this position each time it is locked.

(3) Tighten nut (1).

(4) Loosen nut (3).

(5) Push on lower lock handle until it reaches a point where the lower lock handle wants to lock itself by going over center; then allow lower lock handle to go over center a few degrees. Hold the lower lock handle in this position and adjust stop screw (4) so the lower lock handle will be forced to stop in this position each time it is locked.

(6) Tighten nut (3).

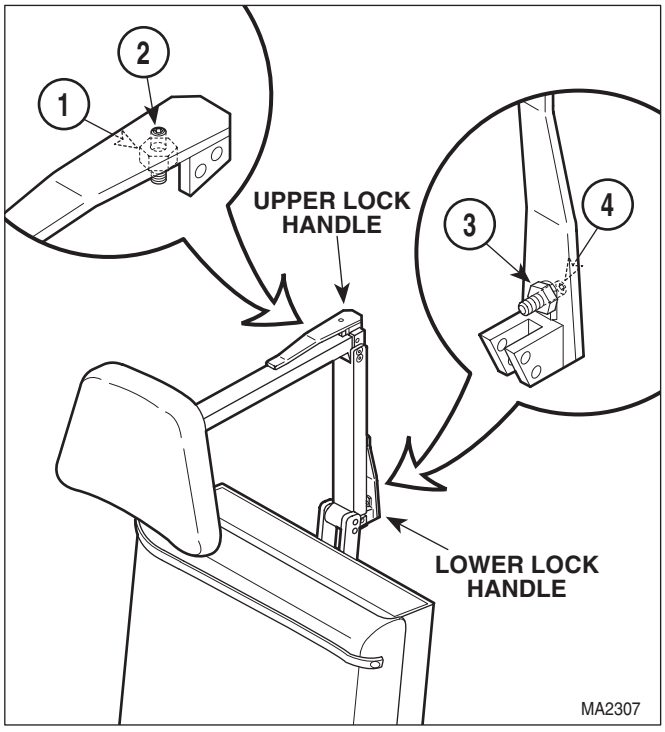

Figure 4-29. Headrest Handles Handle Stops Adjustment

4.25 Stirrup Assembly And Components Removal / Installation

A. Removal

(1) Remove hole plug (1, Figure 4-30) from access hole in seat weldment (2).

(2) Insert screwdriver in access hole and remove screw (3) from stirrup assembly (4).

(3) Pull stirrup assembly (4) out of pivot boss (5).

(4) Remove pivot boss (5) and stirrup guide bracket (6) from stirrup mount weldment (7).

(5) If damaged, remove stirrup index spring (8) from stirrup guide bracket (6).

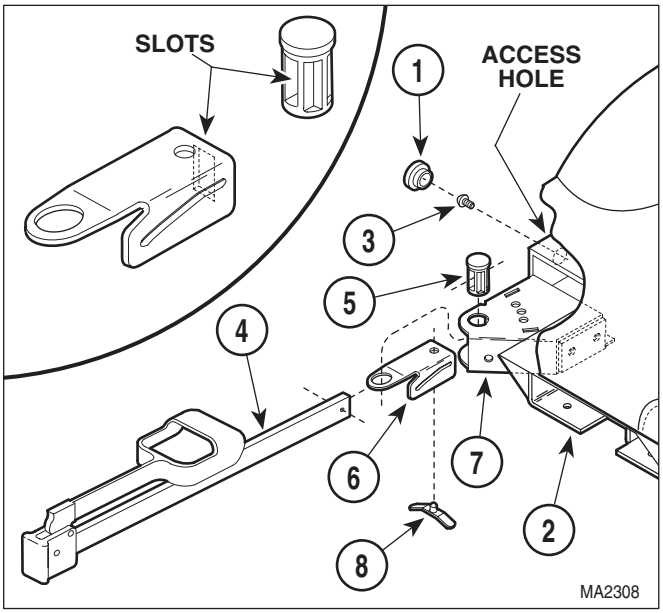

Figure 4-30. Stirrup Assembly And Components Removal / Installation

B. Installation

(1) If removed, install stirrup index spring (8) on stirrup guide bracket (6).

(2) Install stirrup guide bracket (6) in stirrup mount weldment (7) and secure with pivot boss (5).

(3) Slide stirrup assembly (4) thru slot in pivot boss (5) and thru slot in stirrup guide bracket (6).

(4) Install screw (3) on stirrup assembly (4).

(5) Install hole plug (1) in access hole of seat weldment (2).

4.26 Hand Control Panel Removal / Installation

A. Removal

(1) Disconnect hand control coil cord (1, Figure 4-31) from connector of hand control panel (2).

(2) Remove two screws (3) and bottom end cap (4) from hand control tube (5).

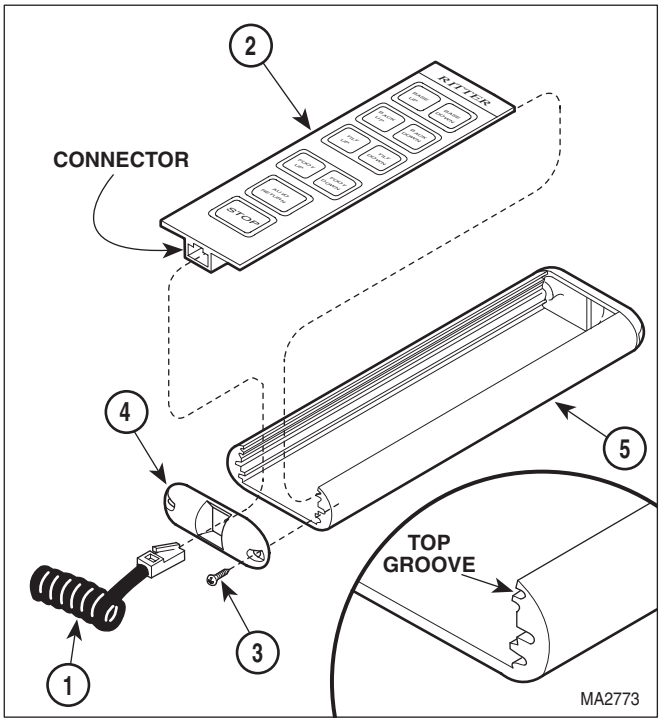

Figure 4-31. Hand Control Panel Removal / Installation

(3) Remove hand control panel (2) from top groove of hand control tube (5).

B. Installation

(1) Install hand control panel (2) in top groove of hand control tube (5).

(2) Install bottom end cap (4) on hand control tube (5) and secure with two screws (3).

(3) Connect hand control coil cord (1) to connector of hand control panel (2).

4.27 Typical Foot Pedal Foot Switch Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove two screws (1, Figure 4-32) and partially separate foot switch bracket (2) from foot control casting (3).

(3) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(4) Tag and disconnect two wires (7) from terminals of foot switch (8).

(5) Remove two nuts (9), washers (10), screws (11), and foot switch (8) from foot switch bracket (2).

B. Installation

(1) Install foot switch (8) on foot switch bracket (2) and secure with two screws (11), washers (10), and nuts (9).

(2) Connect two wires (7) to terminals of foot switch (8).

(3) Ensure springs and spacers are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4), making sure pedal is mounted on pivot spacer.

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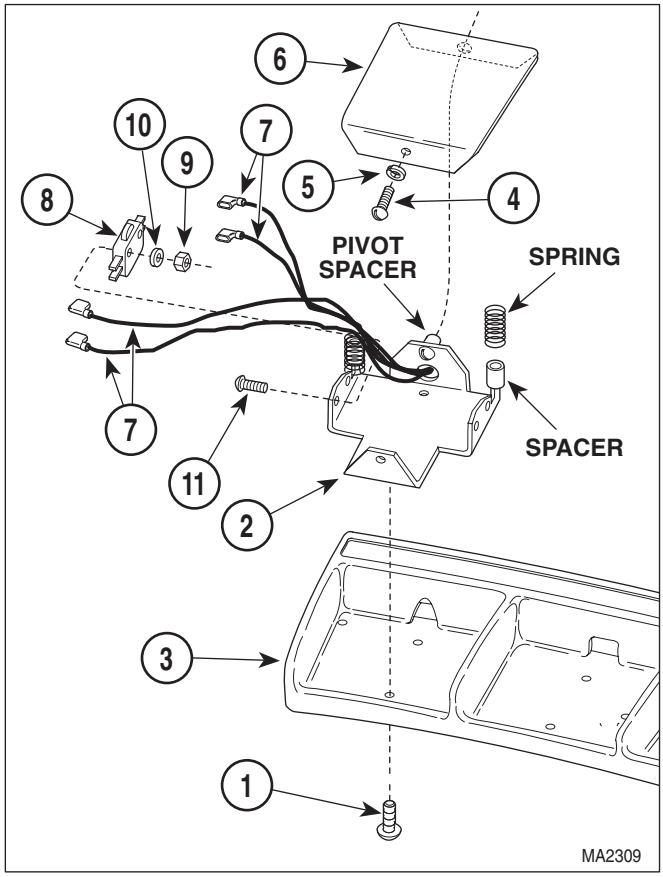

Figure 4-32. Typical Foot Pedal Foot Switch Removal / Installation

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

(6) Plug table power cord into outlet.

4.28 Typical Foot Switch Removal / Installation

A. Removal

(1) Disconnect coil cord of foot control from chair.

(2) Remove four screws (1, Figure 4-33), four glides (2), three screws (3), and wire channel cover (4) from foot control casting (5).

(3) Remove nut (6) and lockwasher (7) from foot switch (8).

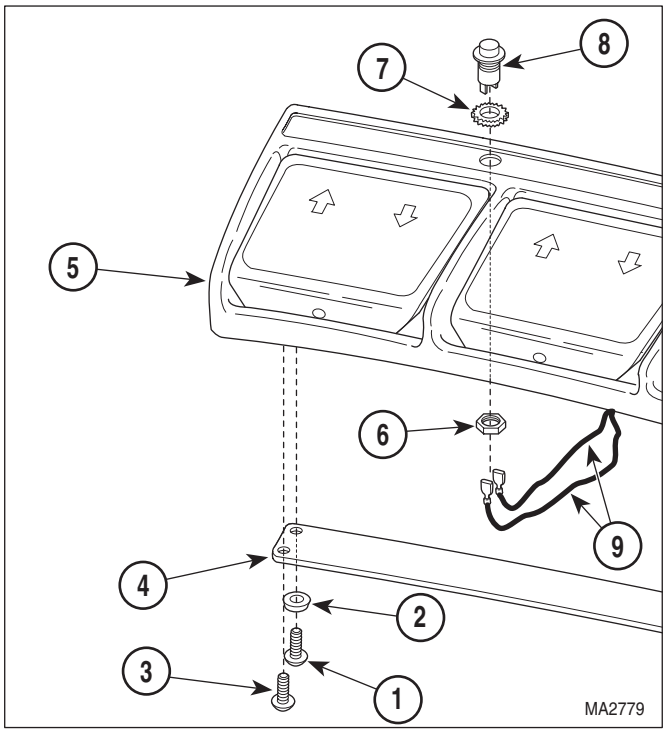

Figure 4-33. Typical Foot Switch Removal / Installation

(4) Partially remove foot switch (8) from foot control casting (5).

(5) Disconnect two wires (9) from terminals of foot switch (8) and remove foot switch.

B. Installation

(1) Connect two wires (9) to terminals of foot switch (8).

(2) Insert foot switch (8) into foot control casting (5) and secure with lockwasher (7) and nut (6).

(3) Install wire channel cover (4) on foot control casting (5) and secure with three screws (3), four glides (2), and four screws (1).

(4) Connect coil cord of foot control to chair.

4.29 Foot Control Interface Board Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

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(2) Remove two screws (1, Figure 4-34) and partially separate foot switch bracket (2) from foot control casting (3).

(3) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(4) Remove two screws (7), lockwashers (8), and partially separate interface board (9) from foot switch bracket (2).

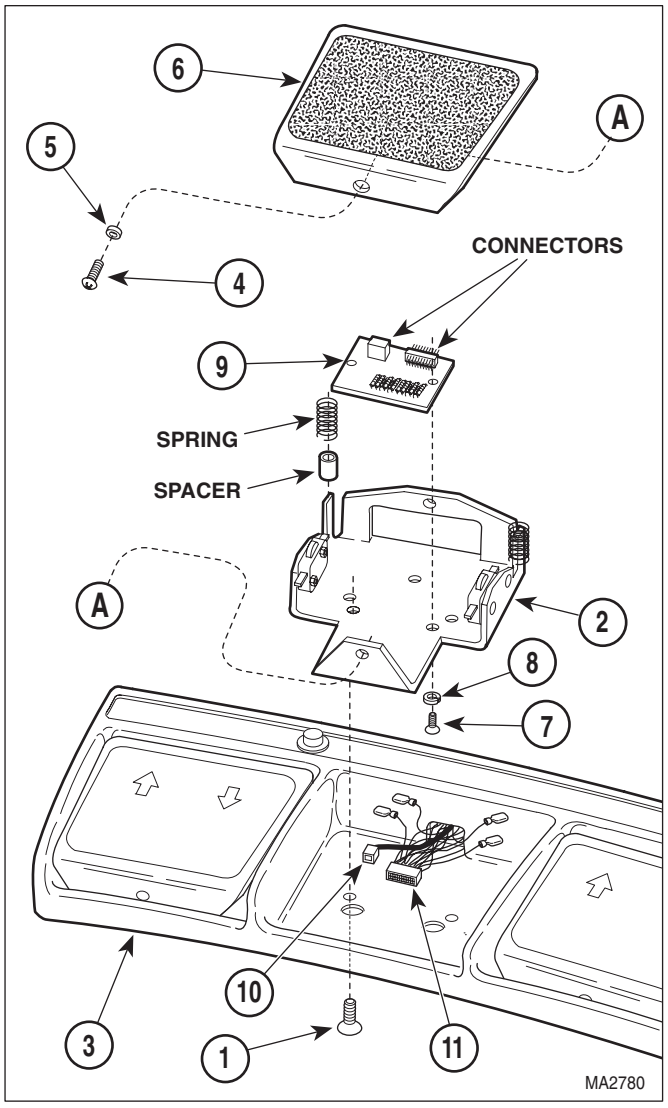

Figure 4-34. Foot Control Interface Board Removal / Installation

(5) Disconnect modular cord (10) and wire harness (11) from connectors of interface board (9).

B. Installation

(1) Connect wire harness (11) and modular cord (10) to connectors of interface board (9).

(2) Install interface board (9) on foot switch bracket (2) and secure with two lockwashers (8) and screws (7).

(3) Ensure springs and spacers are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4), making sure pedal is mounted on pivot spacer.

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

(6) Plug table power cord into outlet.

4.30 Upholstery Removal / Installation

A. Removal

(1) Move table top to flat position.

Upholstered Headrest Assembly Removal

(2) Unlock three locking tabs (1, Figure 4-35) by pulling on locking tabs until locking tabs are free of three studs (2).

(3) Remove upholstered headrest assembly (3) from headboard pivot mount (4) by pulling upholstered headrest assembly straight out.

Upholstered Back Section Removal

NOTE
Locking tabs are in paper roll holder cavity.

(4) Unlock two locking tabs (5) by pulling on locking tabs until locking tabs are free of studs (6).

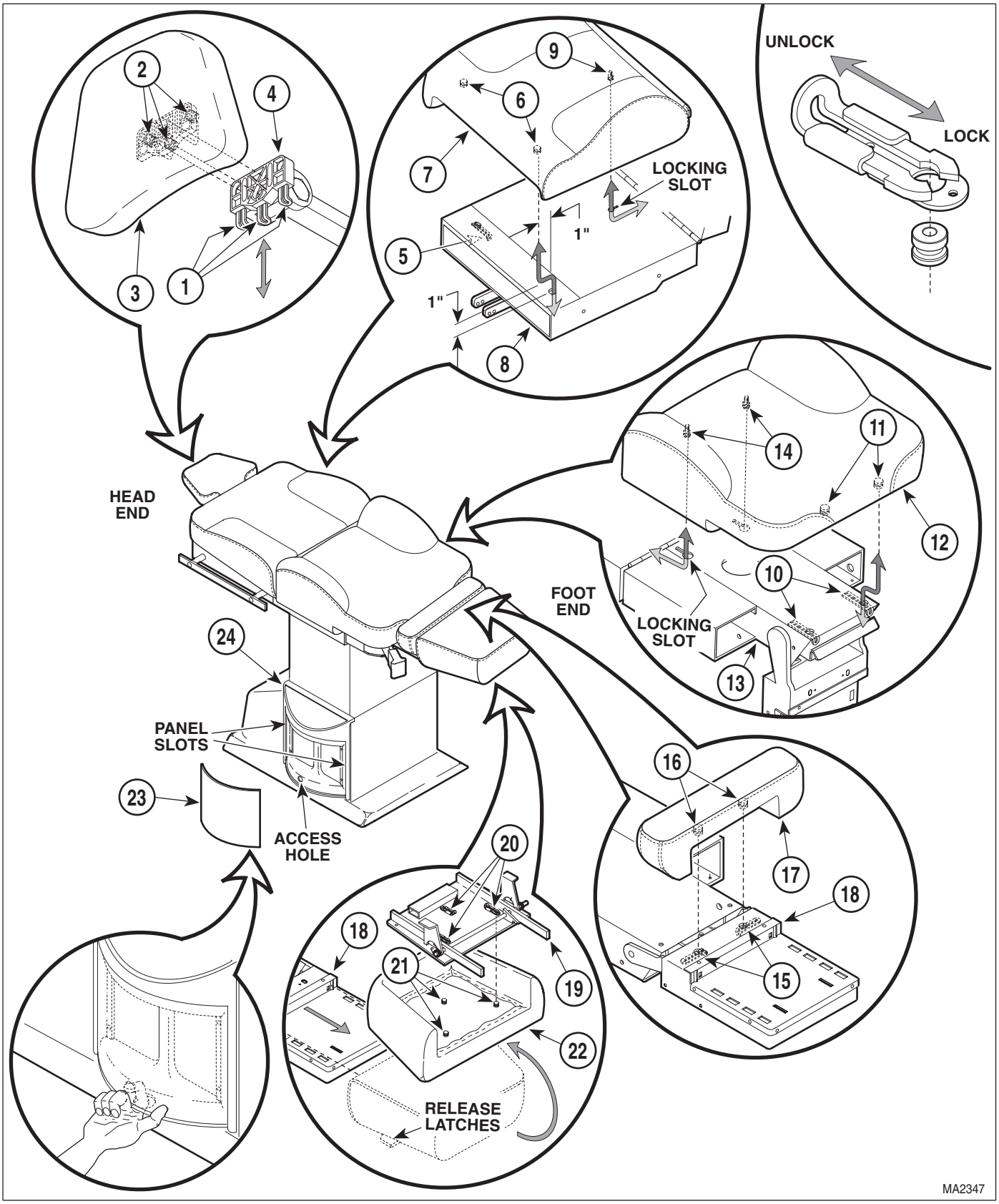

Figure 4-35. Upholstery Removal / Installation

(5) Raise upward on head end of upholstered back section (7), approximately 1" (2.54 cm), until two studs (6) are free of back weldment (8); then slide upholstered back section approximately 1 in. (2.5 cm) toward head end of table until stud (9) is in rounded part of locking slot. Lift upholstered back section (7) straight up and remove from back weldment (8).

Upholstered Seat Section Removal

(6) Lower FOOT DOWN function all the way down.

(7) Unlock two locking tabs (10) by pulling on locking tabs until locking tabs are free of studs (11).

(8) Raise upward on foot end of upholstered seat section (12), approximately 1" (2.54 cm), until two studs (11) are free of seat weldment (13); then slide upholstered seat section approximately 1 in. (2.5 cm) toward foot end of table until two studs (14) are in rounded part of locking slots. Lift upholstered seat section (12) straight up and remove from seat weldment (13).

Upholstered Leg Rest Removal

(9) Raise FOOT UP function all the way up.

(10) Unlock two locking tabs (15) by pulling on locking tabs until locking tabs are free of studs (16).

(11) Remove upholstered leg rest (17) from foot extension weldment (18) by pulling straight up.

Upholstered Foot Rest Removal

(12) Squeeze release latches and remove foot board assembly (19) from foot extension weldment (18).

(13) Unlock three locking tabs (20) by pulling on locking tabs until locking tabs are free of three studs (21).

(14) Remove upholstered foot rest (22) from foot board assembly (19) by pulling straight up.

Side Panel Insert Removal

(15) Using an index finger, reach thru access hole and push outward on side panel insert (23) until bottom edge of side panel insert can be grasped by the other hand. Pull outward on bottom of side panel insert until it "pops" off of side panel (24).

B. Installation

Side Panel Insert Installation

(1) Insert one end of side panel insert (23) into one of the panel slots on side panel (24). Flex side panel insert in the middle and then insert free end of side panel insert into remaining panel slot on other end of side panel. Work side panel insert into proper position.

Upholstered Foot Rest Installation

(2) Install upholstered foot rest (22) on foot board assembly (19) and secure by locking three locking tabs (20) onto three studs (21).

(3) Install foot board assembly (19) on foot extension weldment (18), making sure it locks into place.

Upholstered Leg Rest Installation

(4) Install upholstered leg rest (17) on foot extension weldment (18) and secure by locking two locking tabs (15) onto two studs (16).

(5) Lower FOOT DOWN function all the way down.

Upholstered Seat Section Installation

DANGER
At completion of following step, ensure that upholstered seat section is secure by lifting up on its edges. Failure to secure upholstered seat section properly could result in serious injury to patient.

(6) Install head end of upholstered seat section (12) on seat weldment (13), *making sure two studs (14) are inserted in rounded part of locking slots*; then slide upholstered seat section (12) toward head end of table until two

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studs (11) fit thru stud holes in seat weldment (13). Secure upholstered seat section (12) in place by locking two locking tabs (10) onto two studs (11).

Upholstered Back Section Installation

DANGER
At completion of following step, ensure that upholstered seat section is secure by lifting up on its edges. Failure to secure upholstered seat section properly could result in serious injury to patient.

NOTE
Locking tabs are in paper roll holder cavity.

(7) Install foot end of upholstered back section (7) on back weldment (8), *making sure stud (9) is inserted in rounded part of locking slot;* then slide upholstered back section (7) toward foot end of table until two studs (6) fit thru stud holes in back weldment (8). Secure upholstered back section (7) in place by locking two locking tabs (5) onto two studs (6).

Upholstered Headrest Assembly Installation

(8) Install upholstered headrest assembly (3) on headboard pivot mount (4) and secure by locking three locking tabs (1) onto three studs (2).

4.31 Hydraulic System Flushing Procedure

NOTE
The following procedure is recommended for the following reasons:
- The hydraulic system is excessively contaminated with dirt particles or water, causing repeated malfunctions of hydraulic components.
- An oil other than light weight mineral oil has been added to the hydraulic system, causing the table to malfunction or perform erratically.

A. Flushing Procedure

(1) Lower TABLE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-36) from reservoir (2).

(4) Get a suitable drain pan with a capacity of approximately 2 quarts (1.9 liters).

(5) Using a syringe or suction device, remove all oil from the reservoir (2).

(6) Refill reservoir (2) with light grade mineral oil.

(7) Disconnect hose (A) from elbow (3) and place end of hose in drain pan.

(8) Raise TABLE UP, BACK UP, TILT UP, and FOOT UP functions all the way up, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(9) Connect hose (A) to elbow (3).

(10) Disconnect hose (B) from up functions shuttle valve (4) and place end of hose in drain pan.

(11) Lower TABLE DOWN, BACK DOWN, TIL T DOWN, and FOOT DOWN functions all the way down, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(12) Connect hose (B) to up functions shuttle valve (4).

(13) Repeat steps 7 thru 12 until oil being removed is clear and contains no dirt particles.

(14) Run all the functions up and down until all air is purged from the hydraulic system.

(15) Lower all functions; then check oil level and add or remove oil as necessary (Refer to para 4.3).

(16) Install motor cover assembly (Refer to para 4.2).

(17) Dispose of used oil in accordance with local regulations.

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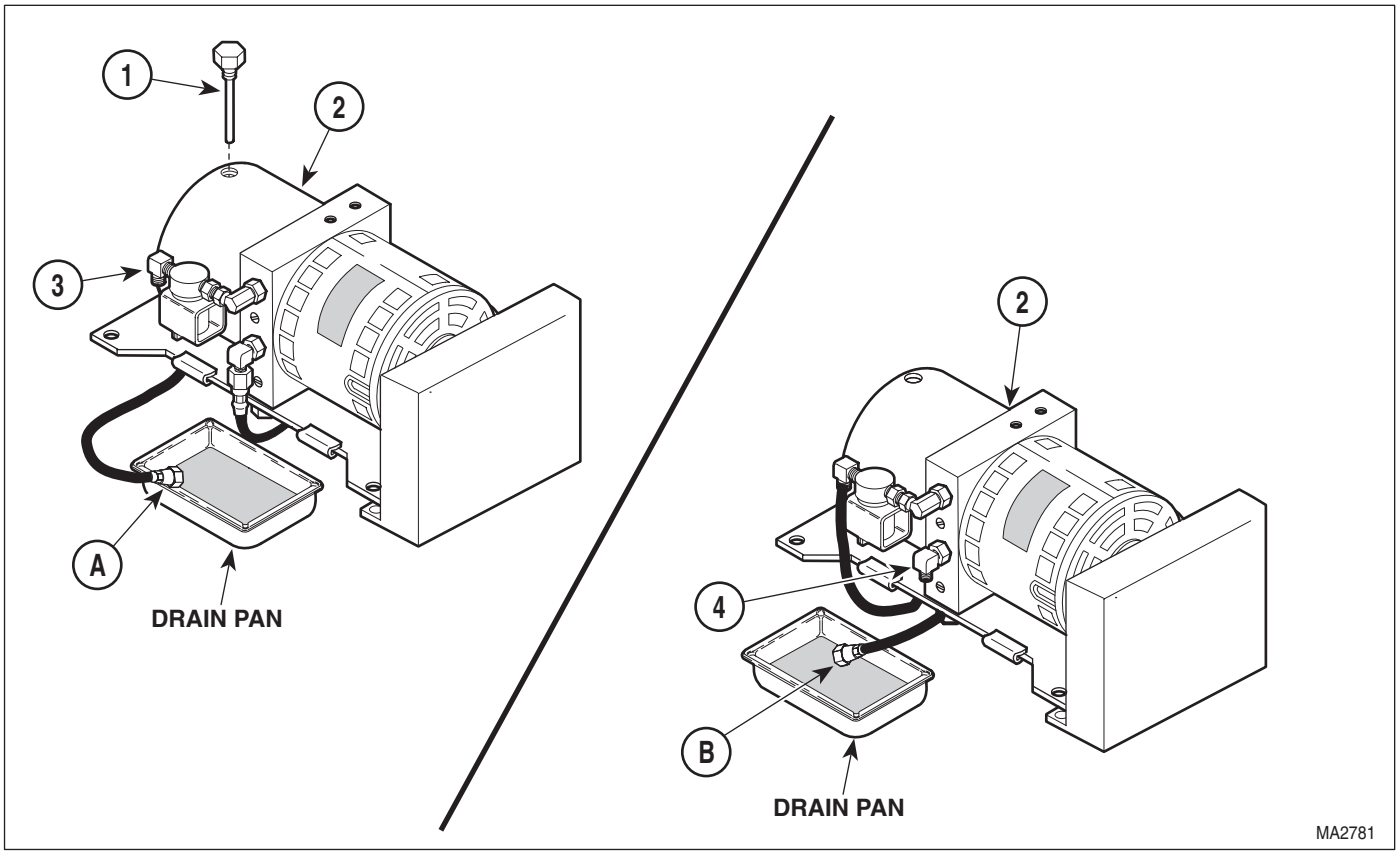

Figure 4-36. Hydraulic System Flushing Procedure

SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

Figure 5-1 illustrates the logic / current flow and the wiring connections between the electrical components in the table.

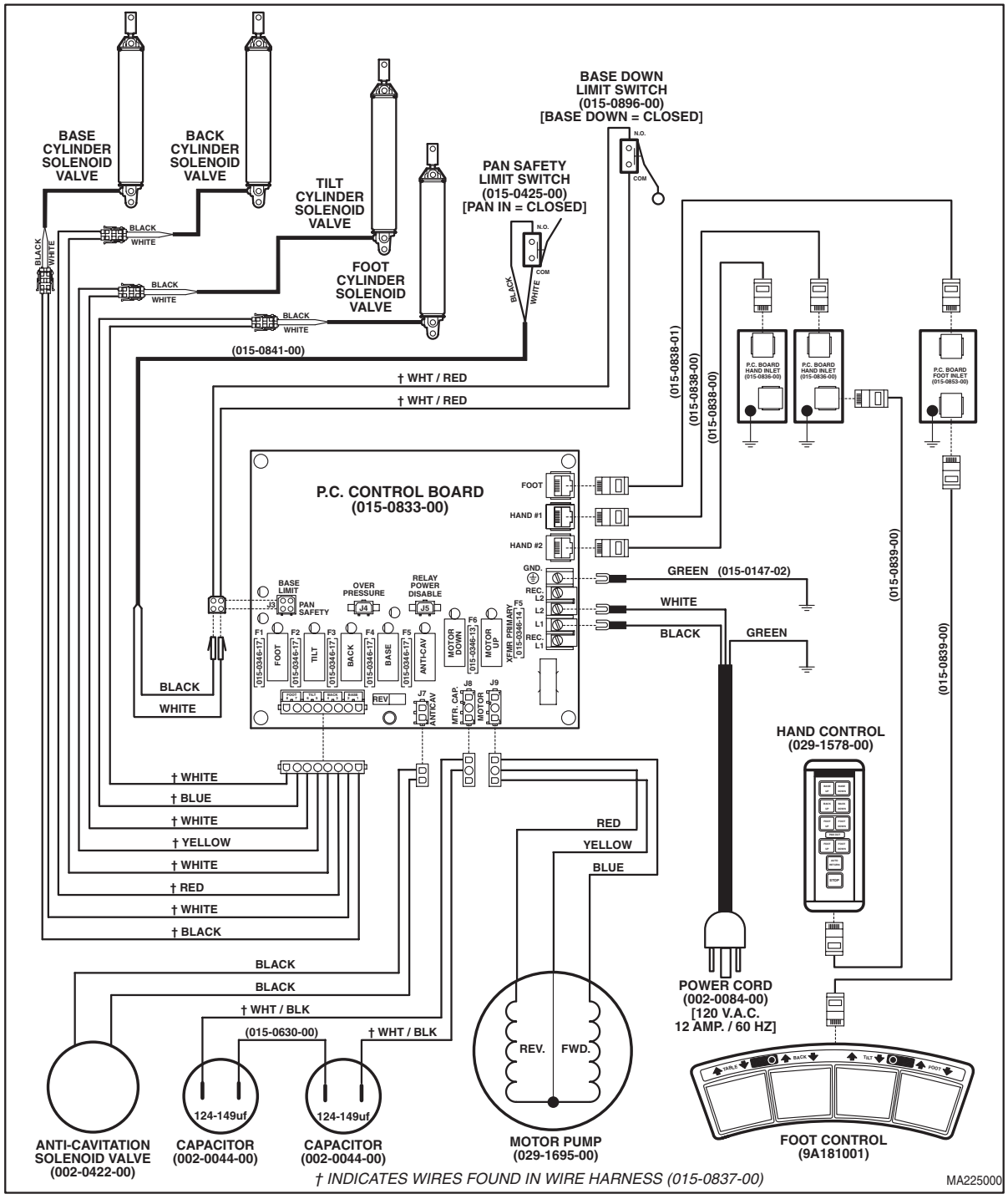

Figure 5-1. Electrical Schematic / Wiring Diagram

SECTION V
SCHEMATICS AND DIAGRAMS

5.2 Hydraulic Flow Diagrams

Figure 5-2, Sheet 1, illustrates the hydraulic oil flow through the table when a table up function is selected.

Figure 5-2, Sheet 2, illustrates the hydraulic oil flow through the table when a table down function is selected.

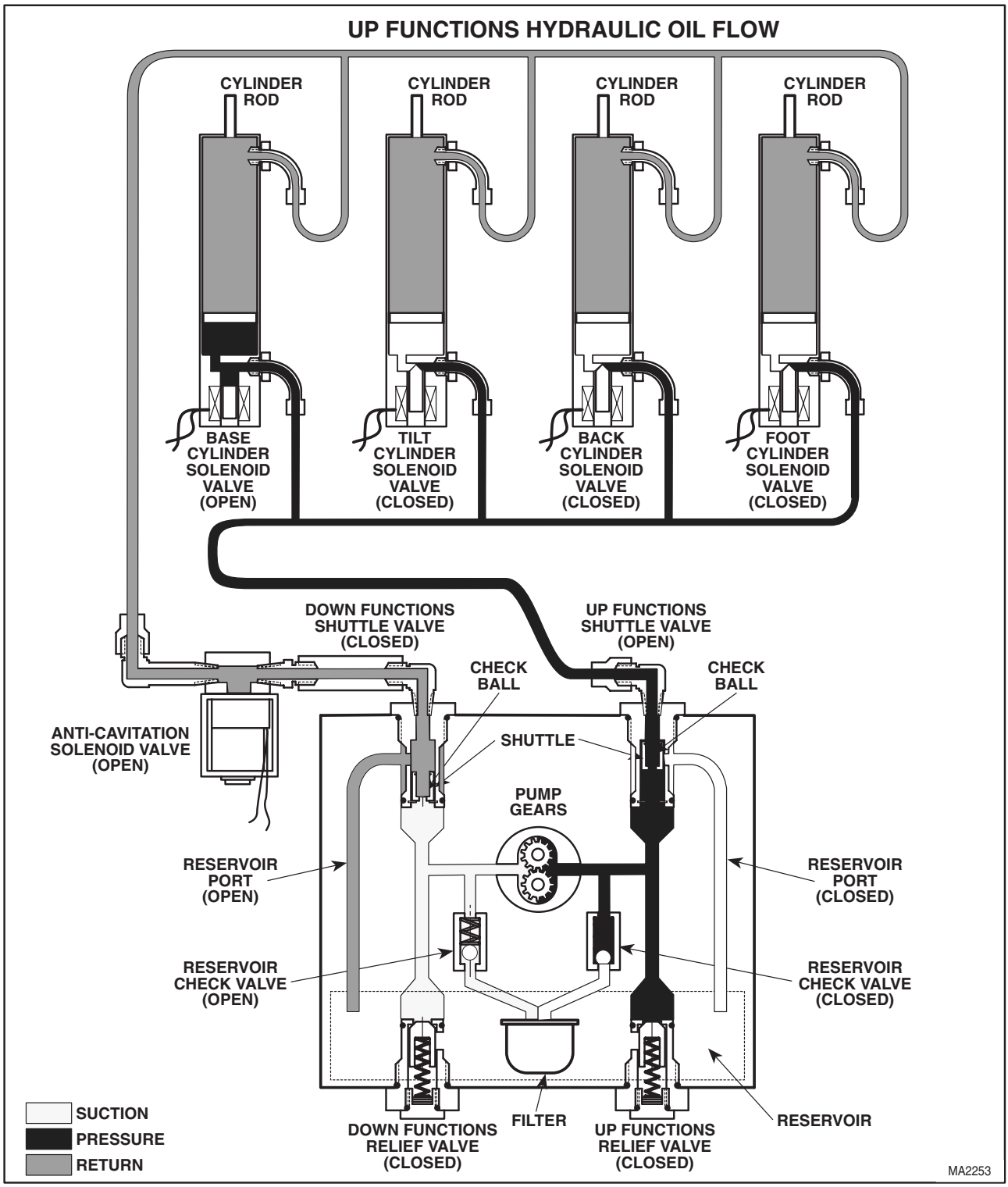

Figure 5-2 (Sheet 1 of 2). Up Functions Hydraulic Flow Diagram

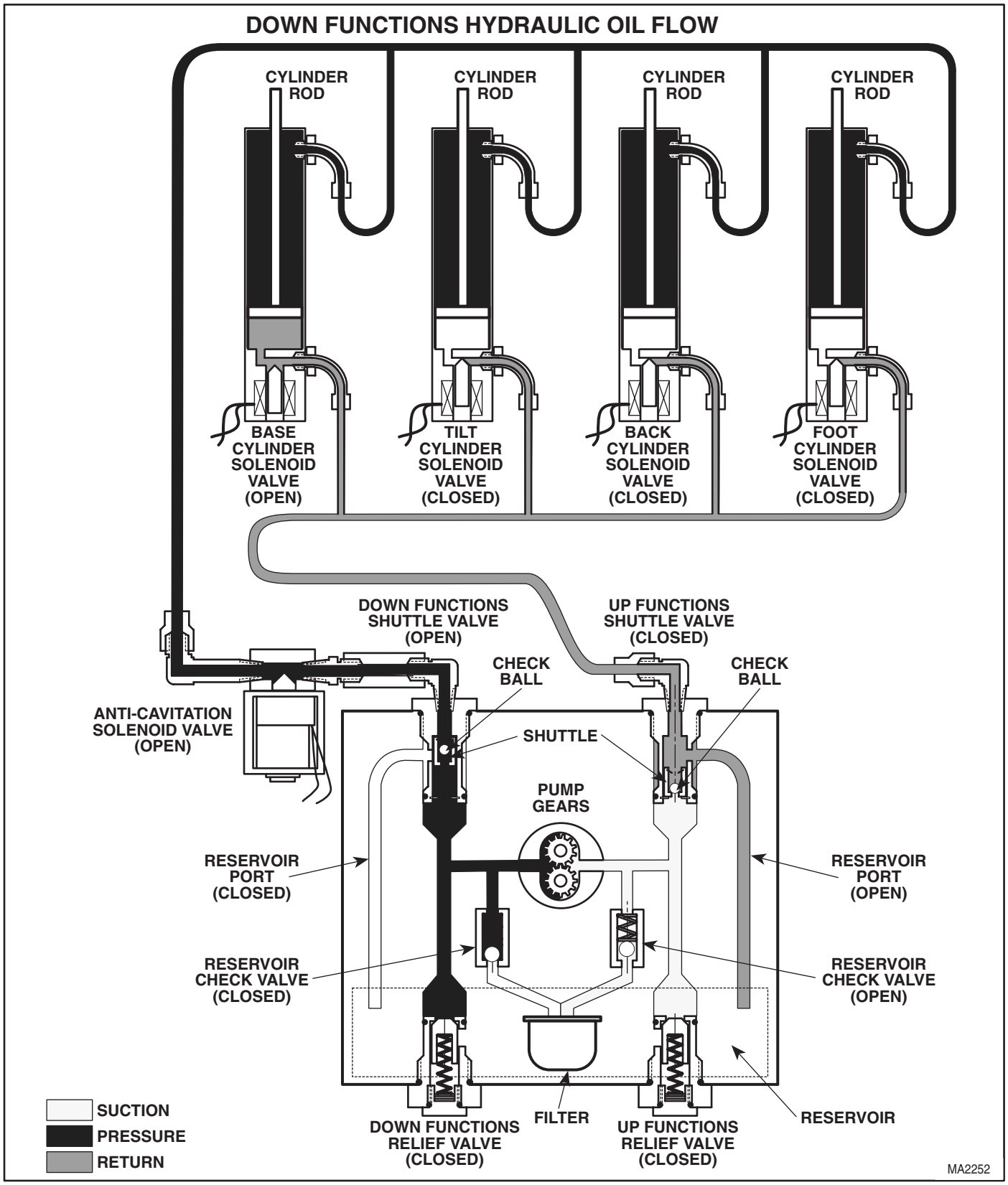

Figure 5-2 (Sheet 2 of 2). Down Functions Hydraulic Flow Diagram

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SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the unit in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets [•] in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

6.3 Torque Specifications and Important Assembly Notes

When specific assembly torque specifications, measurements, or procedures have been identified, by our engineering department, as required to assure proper function of the unit, those torque specifications measurements, and procedures will be noted on the parts illustrations. Adherence to these requirements is essential.

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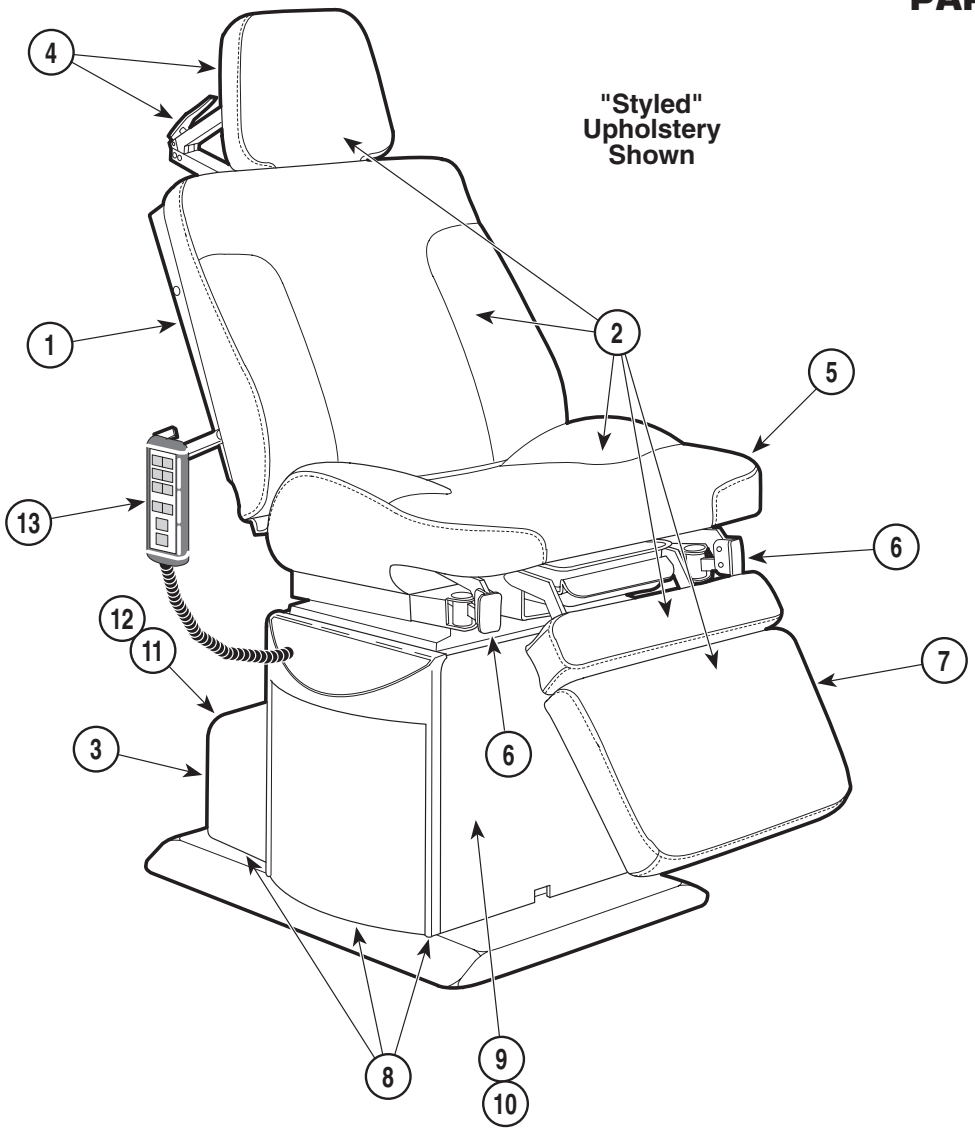
Pictorial Index



MA261400

Item	Part No.	Description	Page
	319-001	Power Examination Table 115 V. (Serial Number Prefix ER-****)	6-2
1	•	• Back Components	6-3
2	••	•• Upholstery Set - Standard	6-4
	••	•• Upholstery Set - Narrow	6-5
	••	•• Upholstery Set - Styled	6-6
3	••	•• Hydraulic System	6-7
4	••	•• Headrest Assembly	6-8
5	•	• Seat Components	6-9
6	••	•• Stirrup Assembly	6-10
7	•	• Footboard Components	6-11
8	•	• Base Covers And Enclosures	6-12
9	•	• Base Mechanical Components	6-13
10	••	•• Base Slide Assembly	6-14
11	•	• Base Electrical Components	6-15
12	••	•• Motor / Pump Assembly	6-16
13	•	• Hand Control Assembly	6-17
14	• 003-0673-00	• Installation & Operation Manual (Not Shown)	N/S

Item	Part No.	Description	Page
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
15	• 9A43001	• Chair Arm	9A43
16	• 9A46001	• Rotating Clamp	9A46
17	• 9A51001	• Facial Pad	9A51
18	• 9A60001	• Restraint Belts	9A60
19	• 9A67002	• Table Rail Kit	9A67
20	• 9A75001	• Caster Base	9A75
21	• 9A77001	• I.V. Pole	9A77
22	• 9A78001	• Vision Block Screen	9A78
23	• 9A81001	• Articulating Armboard	9A81
24	• 9A82001	• Surgery Armboard	9A82
25	• 9A83001	• Instrument Tray	9A83
26	• 9A147002	• Knee Crutch Assy.	9A147
27	• 9A157001	• Side Rail Assembly	9A157
28	• 9A179001	• Fixed Armboard	9A179
29	• 9A181001	• Foot Control Assembly	9A181
30	• 9A18400x	• Base Rail Kit	9A184
31	• 9A19400x	• Drain Pan	9A194
32	• 9A19500x	• Urology Drain Pan	9A195
33	• 9A197001	• Swivel Wheel Caster Acc.	9A197
34	• 9A198001	• Round Headrest	9A198
35	• 9A199001	• Surgery Headrest	9A199

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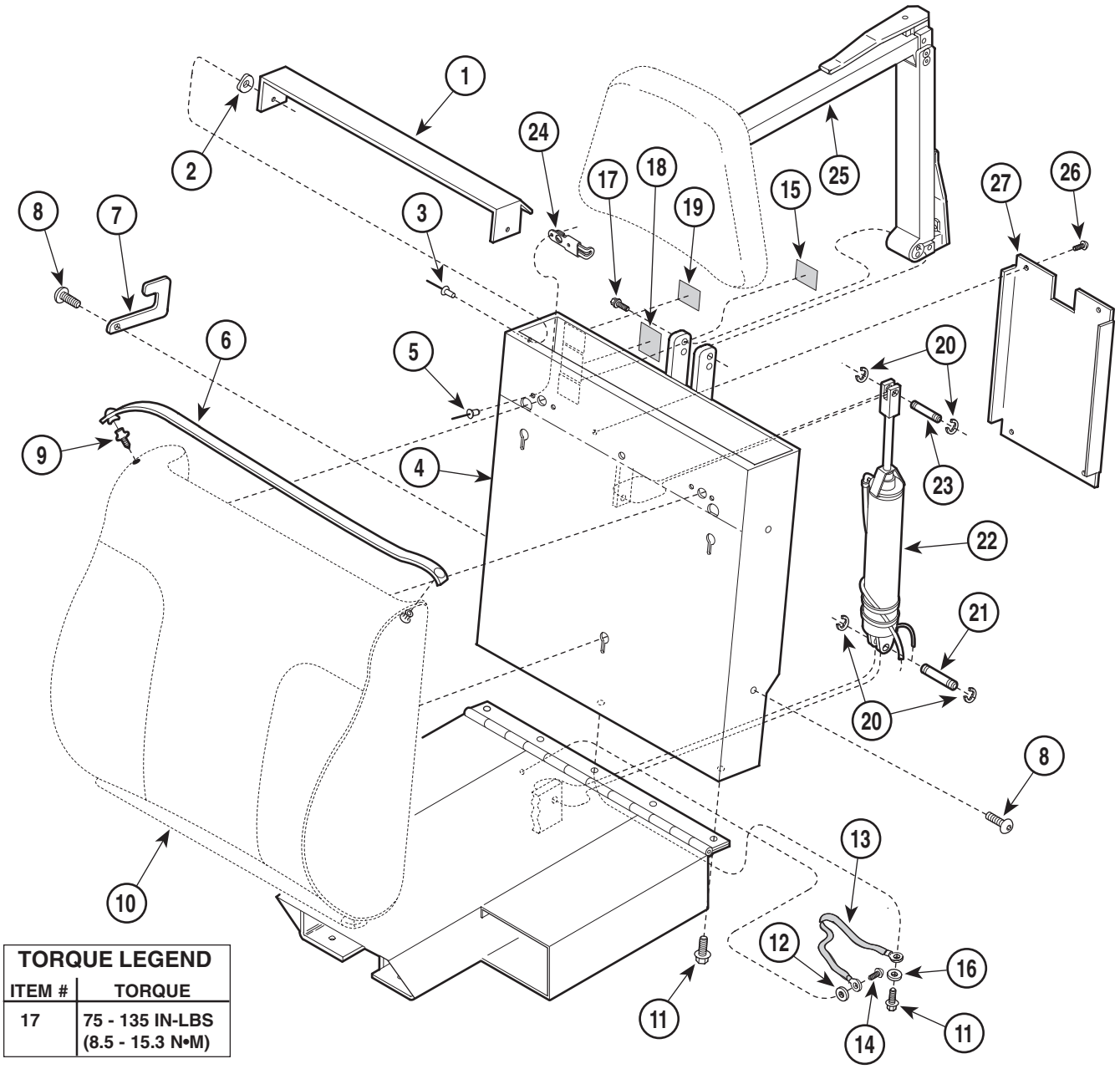
Back Components



TORQUE LEGEND	
ITEM #	TORQUE
17	75 - 135 IN-LBS (8.5 - 15.3 N•M)

MA261000

Item	Part No.	Description	Qty.
1	050-0472-20	Paper Cover	1
2	045-0001-12	Curved Washer	2
3	042-0010-03	Pop Rivet	2
4	030-0877-20	Back Weldment	1
5	042-0010-11	Pop Rivet	4
6	002-0146-00	Paper Tear Strip Set (24")	1
7	050-2495-20	Hand Control Bracket (Location Opt.)	1
8	040-0375-19	Screw	4
9	016-0022-00	Stud	2
10		Upholstered Back Section (Refer to "Upholstery Set" Elsewhere)	1
11	040-0250-88	Screw	5
12	045-0001-31	Lockwasher	1
13	015-0082-02	Grounding Braid	1
14	040-0010-04	Screw	1
15	040-0250-10	Screw	1
16	061-0301-00	U/L Label	1
17	040-0250-88	Screw (*Refer to Torque Chart*)	4
18	061-0117-00	Standards Label	1
19		Serial Number Tag	1
20	042-0007-00	E-Ring	4
21	042-0006-01	Clevis Pin	1
22		Back Cylinder (Refer to "Hydraulic System" Elsewhere)	1
23	042-0006-00	Clevis Pin	1
24	016-0542-00	Slide Latch Assembly	2
25		Two Arm Headlock Assembly (Refer to "Headrest Assembly" Elsewhere)	1
26	040-0006-06	Screw	4
27	050-0872-20	Back Cover	1

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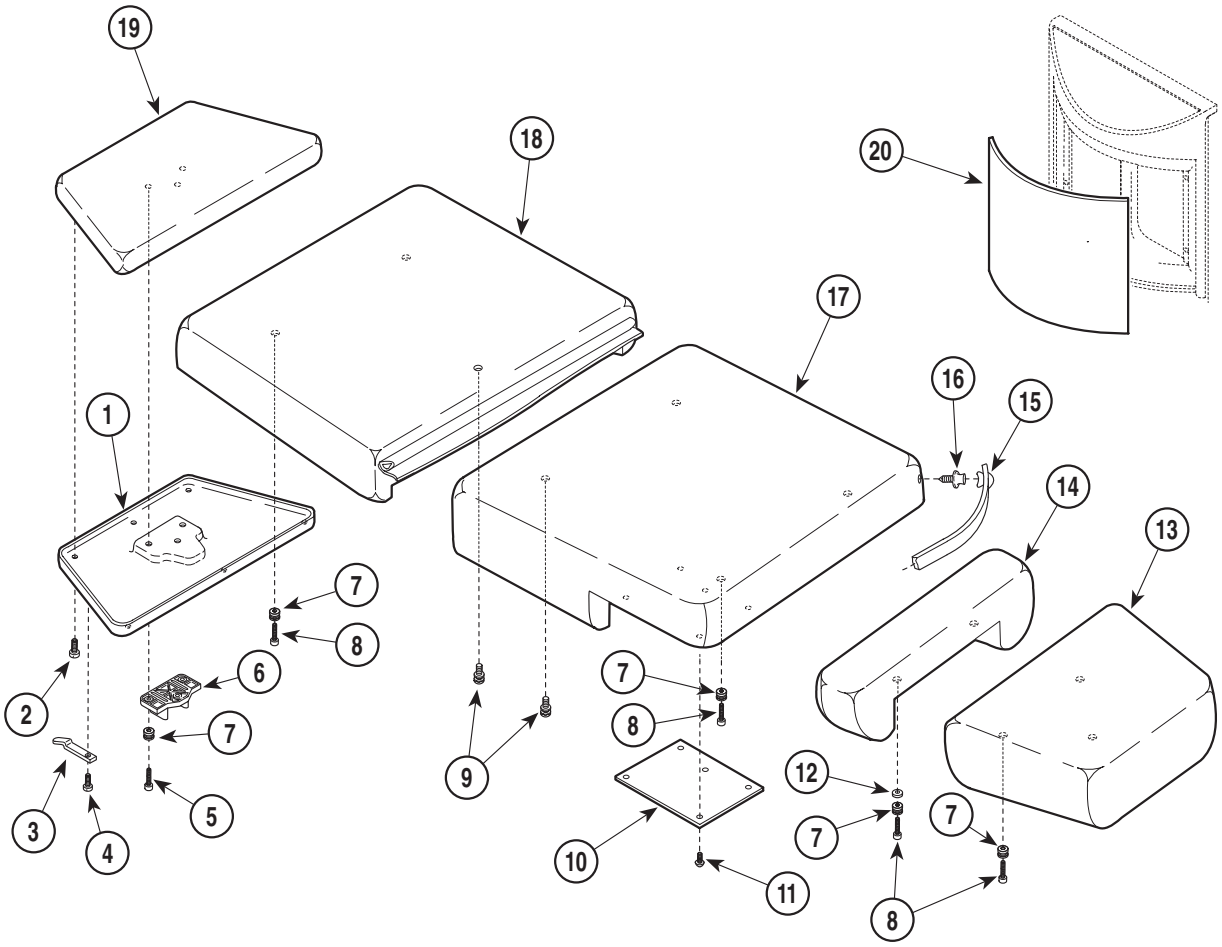
Upholstery Set - Standard



MA2468

Item	Part No.	Description	Qty.
	002-0428-XX	Upholstery Set-Standard Width (Incl. Items 1 thru 20) {Specify Color}	1
1	• 053-0628-00	• Headrest Cover	1
2	• 040-0006-20	• Screw	2
3	• 058-0001-03	• Bag Clip	2
4	• 040-0006-00	• Screw	2
5	• 040-0010-78	• Screw (Apply Loctite #042-0024-00)	3
6	• 053-0582-00	• Headboard Pillow Mount	1
7	• 042-0137-00	• Upholstery Latch Stud	12
8	• 040-0010-104	• Screw	9
9	• 042-0120-00	• Upholstery Mount Stud (Apply Loctite # 042-0024-00)	3
10	• 050-3102-20	• Seat Cover	1
11	• 040-0006-00	• Screw	10
12	• 057-0379-00	• Spacer	2
13	• 028-0389-**	• Footrest {*Specify Color}	1
14	• 028-0123-**	• Legrest {*Specify Color}	1
15	• 002-0049-00	• Paper Tear Strip Set (32')	1
16	• 016-0022-00	• Stud	4
17	• 028-0388-**	• Seat Section-Std. {*Specify Color}	1
18	• 028-0387-**	• Back Section-Std. {*Specify Color}	1
19	• 028-0395-**	• Headrest {*Specify Color}	1
20	• 9A200001	• Panel Insert Set-Warm Grey	AR
	• 9A200002	• Panel Insert Set-Slate Grey	AR
	• 9A200003	• Panel Insert Set-Rosedust	AR
	• 9A200004	• Panel Insert Set-Larkspur Blue	AR
	• 9A200005	• Panel Insert Set-Victorian Teal	AR

Item	Part No.	Description	Qty.
		The following are the current stock upholstery set colors (-XX).	
	Part No.	**Upholstery Color/Panel Color**	**Qty.**
	XXX-XXXX-01	Rosedust/Slate Grey	AR
	XXX-XXXX-02	Victorian Teal/Slate Grey	AR
	XXX-XXXX-03	Larkspur Blue/Slate Grey	AR
	XXX-XXXX-04	Warm Grey/Slate Grey	AR
	XXX-XXXX-05	Rosedust/Warm Grey	AR
	XXX-XXXX-06	Victorian Teal/Warm Grey	AR
	XXX-XXXX-07	Larkspur Blue/Warm Grey	AR
	XXX-XXXX-08	Slate Grey/Warm Grey	AR
	XXX-XXXX-09	Warm Grey/Victorian Teal	AR
		The following are current stock upholstery colors (-**) for individual components.	
	Part No.	**Upholstery Color**	**Qty.**
	* * * - * * * * -56	Rosedust	AR
	* * * - * * * * -57	Victorian	AR
	* * * - * * * * -58	Larkspur Blue	AR
	* * * - * * * * -59	Slate Grey	AR
	* * * - * * * * -60	Warm Grey	AR

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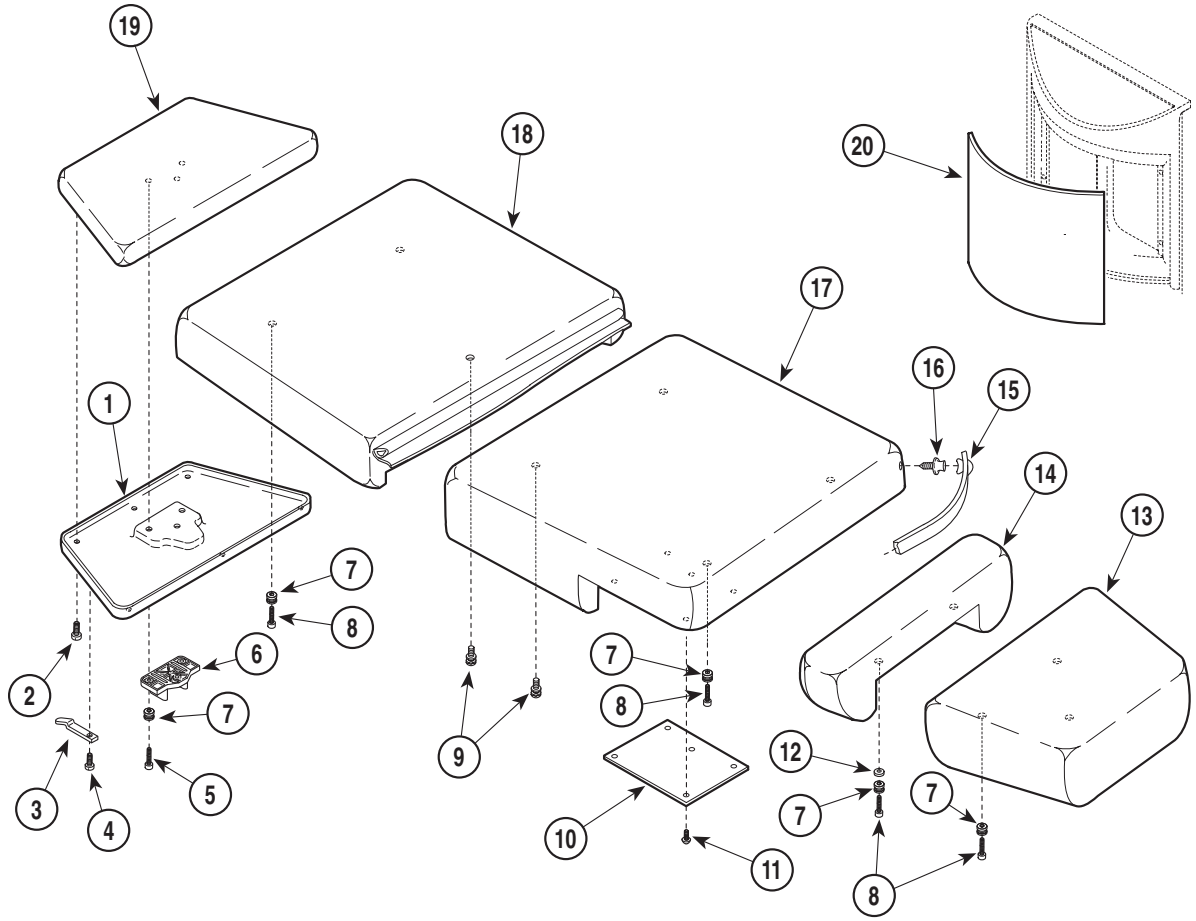
Upholstery Set - Narrow



MA2468

Item	Part No.	Description	Qty.
	002-0429-XX	Upholstery Set-Narrow Width (Incl. Items 1 thru 20) {Specify Color}	1
1	• 053-0628-00	• Headrest Cover	1
2	• 040-0006-20	• Screw	2
3	• 058-0001-03	• Bag Clip	2
4	• 040-0006-00	• Screw	2
5	• 040-0010-78	• Screw (Apply Loctite # 042-0024-00)	3
6	• 053-0582-00	• Headboard Pillow Mount	1
7	• 042-0137-00	• Upholstery Latch Stud	12
8	• 040-0010-104	• Screw	9
9	• 042-0120-00	• Upholstery Mount Stud (Apply Loctite # 042-0024-00)	3
10	• 050-3103-20	• Seat Cover - R.H. (Shown)	1
	• 050-3103-21	• Seat Cover - L.H.	1
11	• 040-0006-00	• Screw	10
12	• 057-0379-00	• Spacer	2
13	• 028-0389-**	• Footrest {*Specify Color}	1
14	• 028-0123-**	• Legrest {*Specify Color}	1
15	• 002-0146-00	• Paper Tear Strip Set (24")	1
16	• 016-0022-00	• Stud	4
17	• 028-0391-**	• Seat Section-Narrow {*Specify Color}	1
18	• 028-0390-**	• Back Section-Narrow {*Specify Color}	1
19	• 028-0395-**	• Headrest {*Specify Color}	1
20	• 9A200001	• Panel Insert Set-Warm Grey	AR
	• 9A200002	• Panel Insert Set-Slate Grey	AR
	• 9A200003	• Panel Insert Set-Rosedust	AR
	• 9A200004	• Panel Insert Set-Larkspur Blue	AR
	• 9A200005	• Panel Insert Set-Victorian Teal	AR

Item	Part No.	Description	Qty.
		The following are the current stock upholstery set colors (-XX).	
	Part No.	**Upholstery Color/Panel Color**	**Qty.**
	XXX-XXXX-01	Rosedust/Slate Grey	AR
	XXX-XXXX-02	Victorian Teal/Slate Grey	AR
	XXX-XXXX-03	Larkspur Blue/Slate Grey	AR
	XXX-XXXX-04	Warm Grey/Slate Grey	AR
	XXX-XXXX-05	Rosedust/Warm Grey	AR
	XXX-XXXX-06	Victorian Teal/Warm Grey	AR
	XXX-XXXX-07	Larkspur Blue/Warm Grey	AR
	XXX-XXXX-08	Slate Grey/Warm Grey	AR
	XXX-XXXX-09	Warm Grey/Victorian Teal	AR
		The following are current stock upholstery colors (-**) for individual components.	
	Part No.	**Upholstery Color**	**Qty.**
	* * * - * * * * -56	Rosedust	AR
	* * * - * * * * -57	Victorian	AR
	* * * - * * * * -58	Larkspur Blue	AR
	* * * - * * * * -59	Slate Grey	AR
	* * * - * * * * -60	Warm Grey	AR

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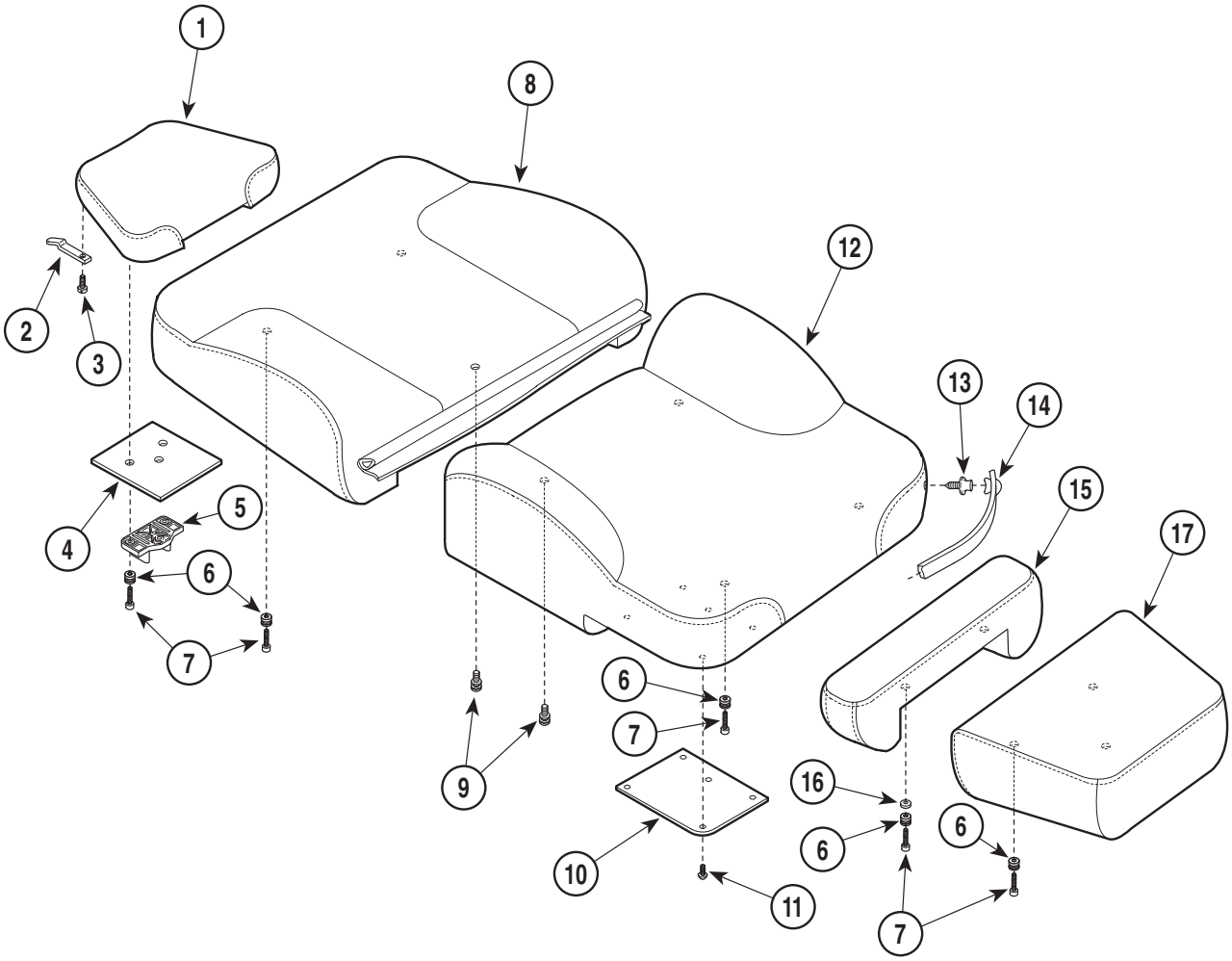
Upholstery Set -Styled



MA2466

Item	Part No.	Description	Qty.
	002-0430-XX	Upholstery Set-Styled (Includes Items 1 thru 18) {Specify Color}	1
1	• 028-0406-**	• Headrest-Styled {*Specify Color}	1
2	• 058-0001-03	• Bag Clip	2
3	• 040-0006-52	• Screw	2
4	• 050-2690-20	• Headboard Cover	1
5	• 053-0582-00	• Headboard Pillow Mount	1
6	• 042-0137-00	• Upholstery Latch Stud	12
7	• 040-0010-104	• Screw	9
8	• 028-0392-**	• Back Section-Styled {*Specify Color}	1
9	• 042-0120-00	• Upholstery Mount Stud	3
10	• 050-3102-20	• Seat Cover	2
11	• 040-0006-00	• Screw	10
12	• 028-0393-**	• Seat Section-Styled {*Specify Color}	1
13	• 016-0022-00	• Stud	4
14	• 002-0146-00	• Paper Tear Strip Set (32")	1
	• 002-0049-00	• Paper Tear Strip Set (24")	1
15	• 028-0287-**	• Legrest-Styled {*Specify Color}	1
16	• 057-0379-00	• Spacer	2
17	• 028-0394-**	• Footrest-Styled {*Specify Color}	1
18	• 9A200001	• Panel Insert Set-Warm Grey	AR
	• 9A200002	• Panel Insert Set-Slate Grey	AR
	• 9A200003	• Panel Insert Set-Rosedust	AR
	• 9A200004	• Panel Insert Set-Larkspur Blue	AR
	• 9A200005	• Panel Insert Set-Victorian Teal	AR

Item	Part No.	Description	Qty.
		The following are the current stock upholstery set colors (-XX).	
	Part No.	**Upholstery Color/Panel Color**	**Qty.**
	XXX-XXXX-01	Rosedust/Slate Grey	AR
	XXX-XXXX-02	Victorian Teal/Slate Grey	AR
	XXX-XXXX-03	Larkspur Blue/Slate Grey	AR
	XXX-XXXX-04	Warm Grey/Slate Grey	AR
	XXX-XXXX-05	Rosedust/Warm Grey	AR
	XXX-XXXX-06	Victorian Teal/Warm Grey	AR
	XXX-XXXX-07	Larkspur Blue/Warm Grey	AR
	XXX-XXXX-08	Slate Grey/Warm Grey	AR
	XXX-XXXX-09	Warm Grey/Victorian Teal	AR
		The following are current stock upholstery colors (-**) for individual components.	
	Part No.	**Upholstery Color**	**Qty.**
	* * * - * * * * -56	Rosedust	AR
	* * * - * * * * -57	Victorian	AR
	* * * - * * * * -58	Larkspur Blue	AR
	* * * - * * * * -59	Slate Grey	AR
	* * * - * * * * -60	Warm Grey	AR

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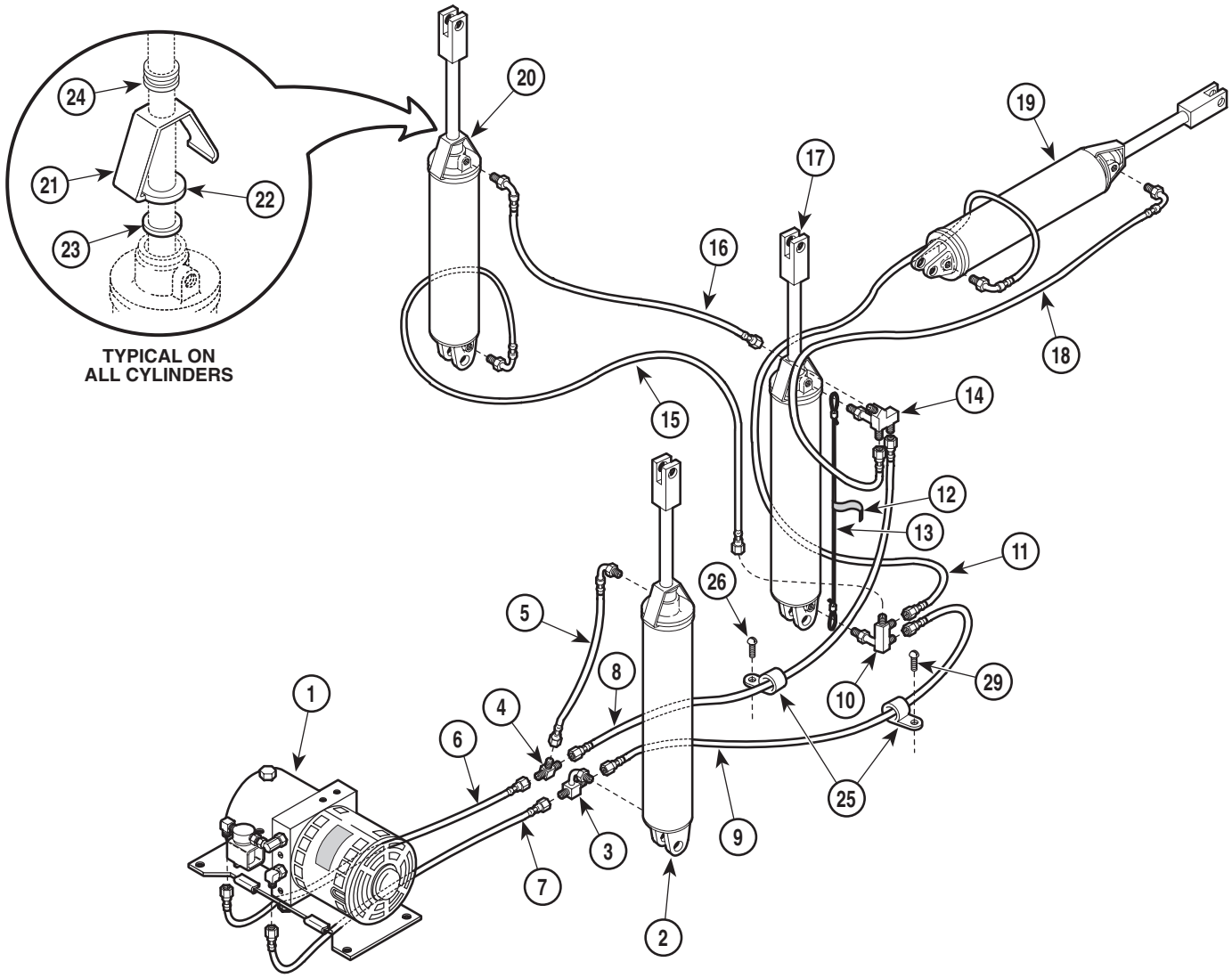
Hydraulic System



MA241501

Item	Part No.	Description	Qty.
1		Motor / Pump Components (See Breakdown Elsewhere)	Ref
2	002-0420-00	Base Cylinder Kit	1
3	014-0135-00	Base Tee	1
4	014-0098-00	Union Tee	1
5	002-0120-00	Hose Assembly Kit	1
6	002-0117-00	Hose Assembly Kit	1
7	002-0119-00	Hose Assembly Kit	1
8	002-0122-00	Hose Assembly Kit	1
9	002-0121-00	Hose Assembly Kit	1
10	014-0136-00	Tilt Power Manifold	1
11	002-0123-00	Hose Assembly Kit	1
12	061-0113-00	Safety Cable Label	1
13	016-0161-00	Safety Cable	1
14	014-0137-00	Return Manifold	1
15	002-0125-00	Hose Assembly Kit	1
16	002-0126-00	Hose Assembly Kit	1
17	002-0421-00	Tilt Cylinder Kit	1
18	002-0124-00	Hose Assembly Kit	1
19	002-0418-00	Foot Cylinder Kit	1
20	002-0419-00	Back Cylinder KIt	1
21	025-0032-00	Rod Wiper Bracket	AR
22	054-0109-00	Felt Wiper (1")	AR
23	054-0108-00	Felt Wiper (11/16")	AR
24	053-0226-03	Snap-in Nyliner Bearing	AR
25	015-0001-00	Hose Clip	2
26	040-0010-04	Screw	2
27	015-0013-00	Cable Tie (7.25" {Not Shown})	6
28	015-0013-02	Cable Tie (.87" {Not Shown})	15
29	015-0016-00	Cable Tie (11.5" {Not Shown})	9
30	015-0017-00	Cable Tie (7.5" {Not Shown})	1
31	014-0077-00	Pipe Sealant	AR

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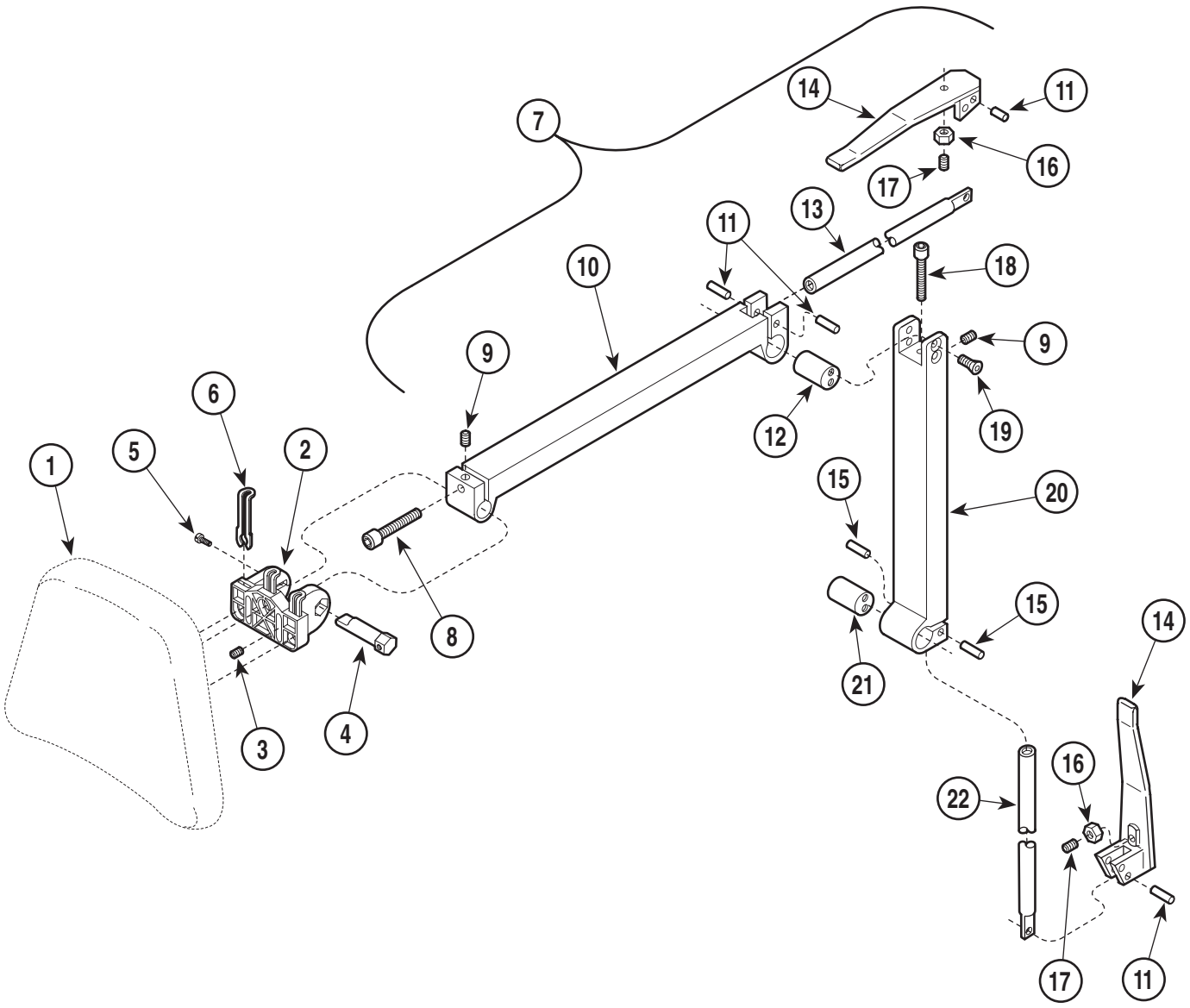
Headrest Assembly



MA2470

Item	Part No.	Description	Qty.
1		Upholstered Headrest {Specify Color} (Refer to "Upholstery Set" Elsewhere)	1
2	053-0581-00	Headboard Pivot Mount	1
3	040-0250-26	Set Screw (Apply Loctite Loctite #042-0024-00)	1
4	057-0375-00	Headboard Pivot Pin	1
5	040-0250-79	Screw	1
6	016-0542-01	Slide Latch	3
7	029-1100-03	Two Arm Headlock Assembly (Includes Items 8 thru 22)	1
8	• 040-0250-11	• Screw	1
9	• 040-0010-14	• Set Screw	2
10	• 030-0131-27	• Headlock Head	1
11	• 042-0002-08	• Dowel Pin	4
12	• 057-0048-01	• Pivot Bar	1
13	• 051-0080-100	• Draw Bar	1
14	• 030-0123-22	• Head Pivot Handle Weldment	2
15	• 042-0002-04	• Dowel Pin	2
16	• 041-0250-12	• Jam Nut	2
17	• 040-0250-70	• Set Screw	2
18	• 040-0250-27	• Screw	1
19	• 040-0250-139	• Screw (Apply Loctite #042-0024-00)	4
20	• 030-0132-22	• Headlock Base	1
21	• 057-0048-00	• Pivot Bar	1
22	• 051-0080-00	• Draw Bar	1

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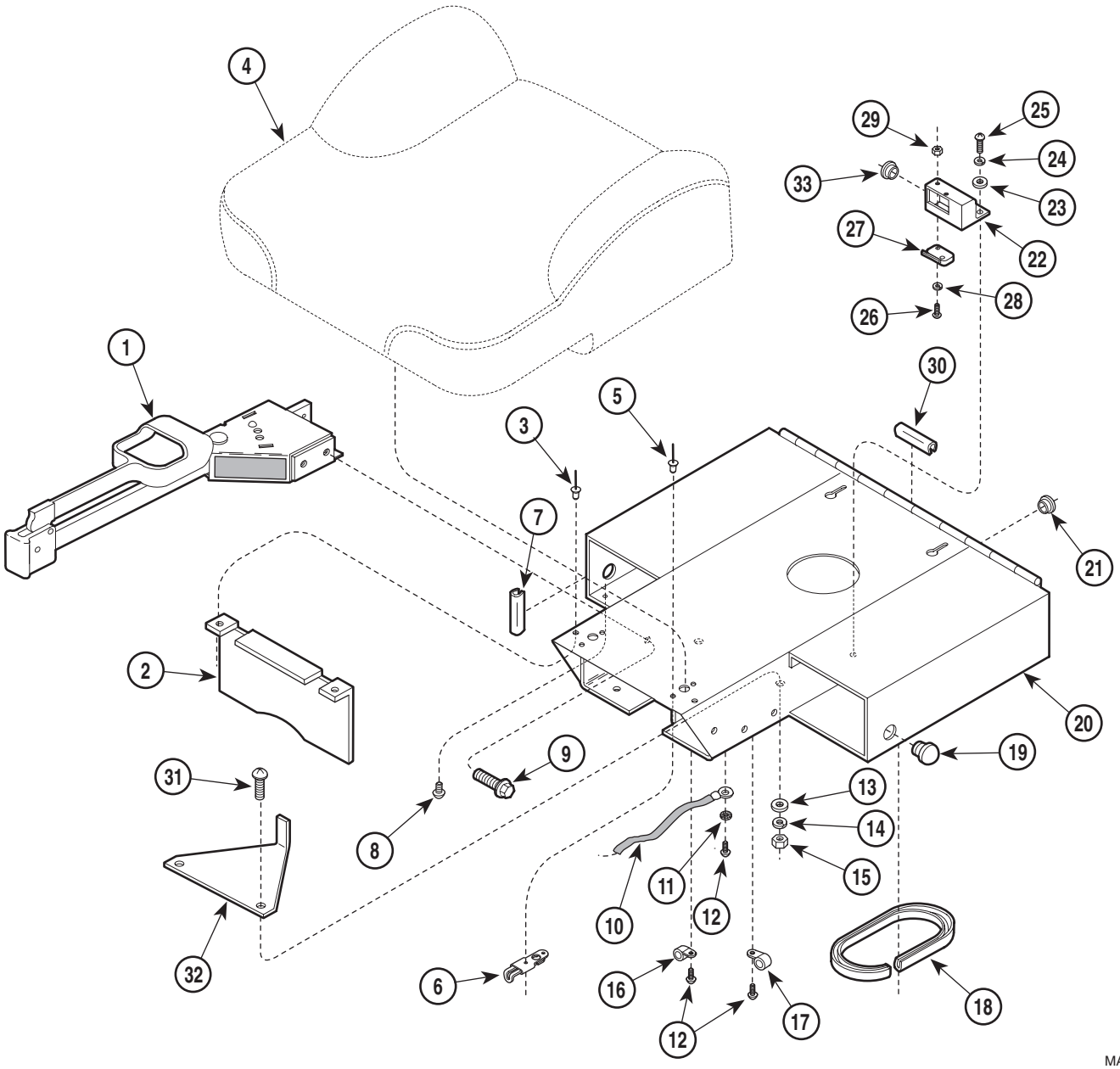
Seat Components



MA2611

Item	Part No.	Description	Qty.
1		Stirrup Assembly {Includes Items 8 & 9} (Refer to Breakdown Elsewhere)	2
2	050-2640-20	Filler Hut	1
3	042-0010-07	Pop Rivet	2
4		Upholstered Seat Section (Refer to "Uphholstery Set" Elsewhere)	1
5	042-0010-11	Pop Rivet	4
6	016-0542-00	Slide Latch Assembly	2
7	016-0140-00	Trim Lock (Specify Length - 1 1/2")	2
8	040-0010-47	Screw	2
9	040-0375-00	Screw	4
10	015-0082-01	Ground Braid	1
11	040-0001-31	Lockwasher	1
12	040-0010-04	Screw	3
13	045-0001-39	Washer	2
14	045-0001-19	Lockwasher	2
15	041-0008-00	Nut	2
16	015-0001-00	Wire Clip	1
17	015-0014-00	Wire Clip	1
18	016-0162-00	Trim Lock (Specify Length - 11")	1
19	053-0050-00	Hole Plug	2
20	030-0876-20	Seat Weldment	1
21	053-0068-06	Snap Bushing	2
22	050-3157-01	Switch Bracket	1
23	045-0001-15	Washer	2
24	045-0001-04	Lockwasher	2
25	040-0010-47	Screw	2
26	040-0004-09	Screw	2
27	015-0425-00	Limit Switch	1
28	045-0001-38	Lockwasher	2
29	041-0004-00	Nut	2
30	016-0140-00	Trim Lock (Specify Length - 2")	2
31	040-0008-31	Screw	2
32	050-3158-00	Switch Actuator Bracket	1
33	015-0002-07	Strain Relief Bushing	1

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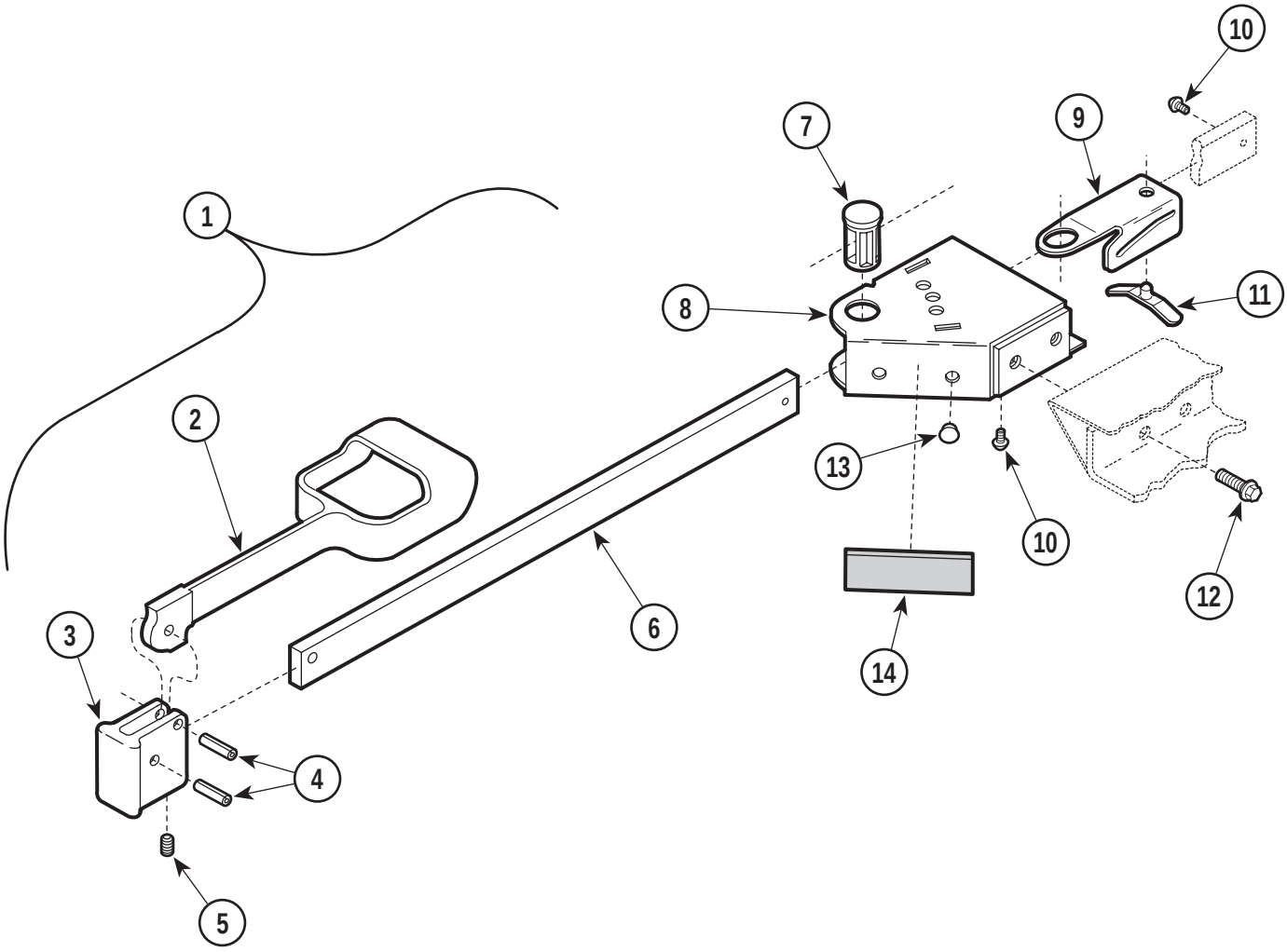
Stirrup Assembly



This assembly is no longer available.
It has been replaced by 002-0719-04.
Note: This kit contains only one stirrup.

MA2237

Item	Part No.	Description	Qty.
	029-1394-00	R.H. Stirrup Assembly {Shown} (Includes Items 1 thru 13)	1
	029-1394-01	L.H. Stirrup Assembly {Not Shown} (Includes Items 1 thru 13)	1
1	• 029-1397-00	• Stirrup Assembly (Includes Items 2 thru 6)	1
2	• • 020-0181-00	• • Stirrup	1
3	• • 020-0182-00	• • Pivot Block	1
4	• • 042-0001-00	• • Roll Pin	2
5	• • 040-0250-15	• • Set Screw	1
6	• • 051-0668-00	• • Horizontal Stirrup Bar (Black)	1
7	• 053-0387-00	• Pivot Boss	1
8	• 030-0736-20	• R.H. Stirrup Mount Weldment (Shown)	1
	• 030-0737-20	• L.H. Stirrup Mount Weldment (Not Shown)	
9	• 050-5027-00	• Stirrup Guide Bracket	1
10	• 040-0010-47	• Screw	2
11	• 016-0400-00	• Stirrup Index Spring	1
12	• 040-0375-00	• Screw	2
13	• 053-0050-05	• Hole Plug ([1] Used on R.H. Stirrup Mount Weldments , [2] Used on L.H Stirrup Mount Weldments)	3
14	061-0296-00	Stirrup Instruction Label (Used on L.H. Stirrup Mount Weldments Only)	1

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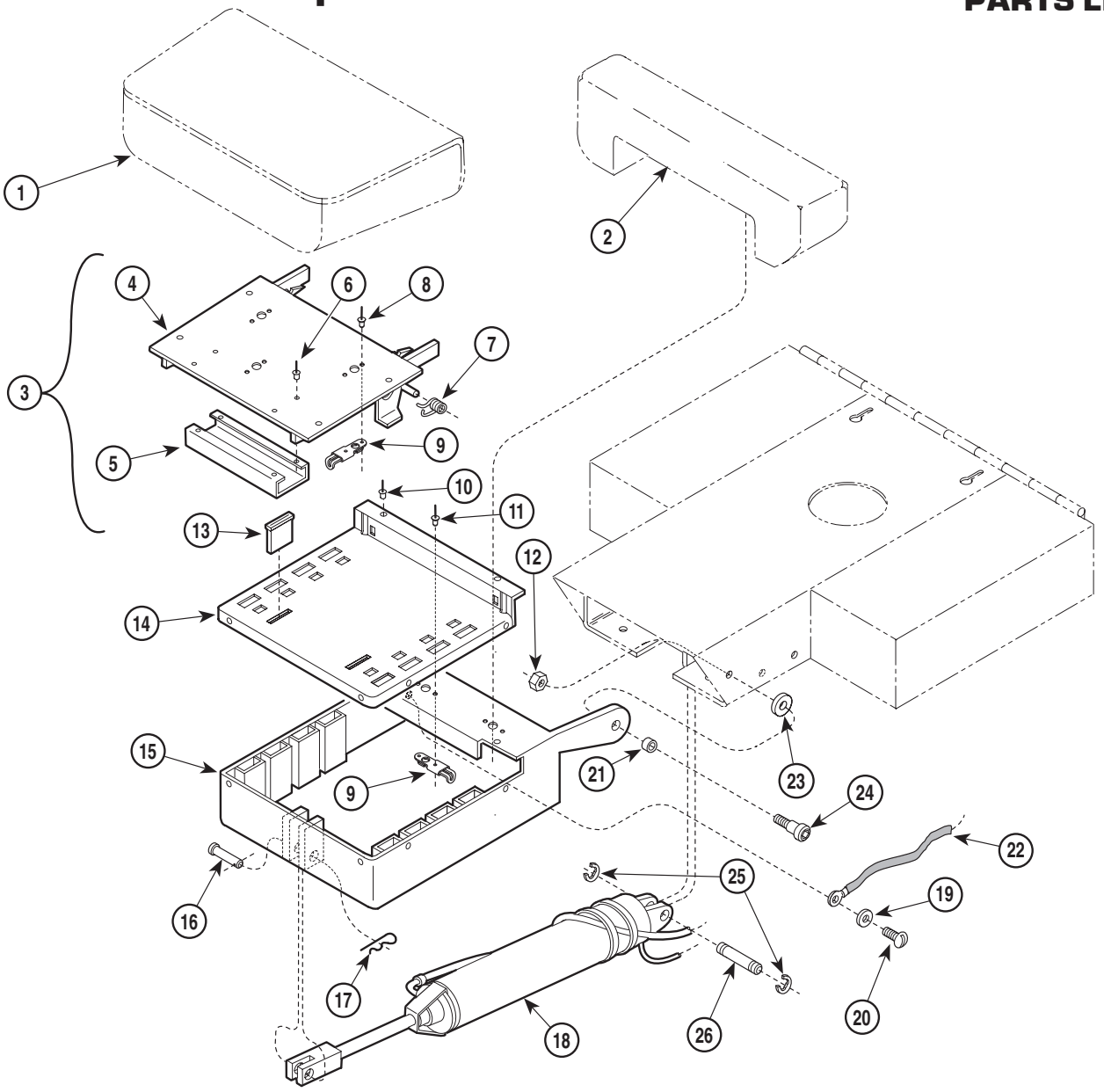
Footboard Components



MA247200

Used on units with Serial Number ER-1000 thru ER-1107

Item	Part No.	Description	Qty.
1		Upholstered Foot Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2		Upholstered Leg Rest (Refer to "Upholstery Set" Elsewhere)	Ref
3	029-1646-00	Footrest Assembly (Includes Items 4 thru 9)	1
4	• 030-0837-20	• Footboard Weldment	1
5	• 050-0878-00	• Catch Channel	1
6	• 042-0010-02	• Pop Rivet	4
7	• 025-0045-01	• L.H. Spring (Shown)	1
	• 025-0045-00	• R.H. Spring (Not Shown)	1
8	• 042-0010-11	• Pop Rivet	6
9	• 016-0542-00	• Slide Latch Assembly	5
10	042-0010-04	Pop Rivet	8
11	042-0010-13	Pop Rivet	4
12	041-0375-05	Jam Nut	2
13	016-0092-00	Magnet	2
14	050-0871-00	Foot Trim	1
15	030-0886-20	Foot Extension Weldment	1
16	042-0005-03	Clevis Pin	1
17	042-0004-00	Pin Clip	1
18		Foot Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
19	045-0001-31	Lockwasher	1
20	040-0010-47	Screw	1
21	016-0076-00	Bushing	2
22	015-0082-01	Ground Braid	1
23	045-0004-00	Washer	2
24	042-0014-00	Shoulder Screw	2
25	042-0007-00	E-Ring	2
26	042-0006-01	Clevis Pin	1

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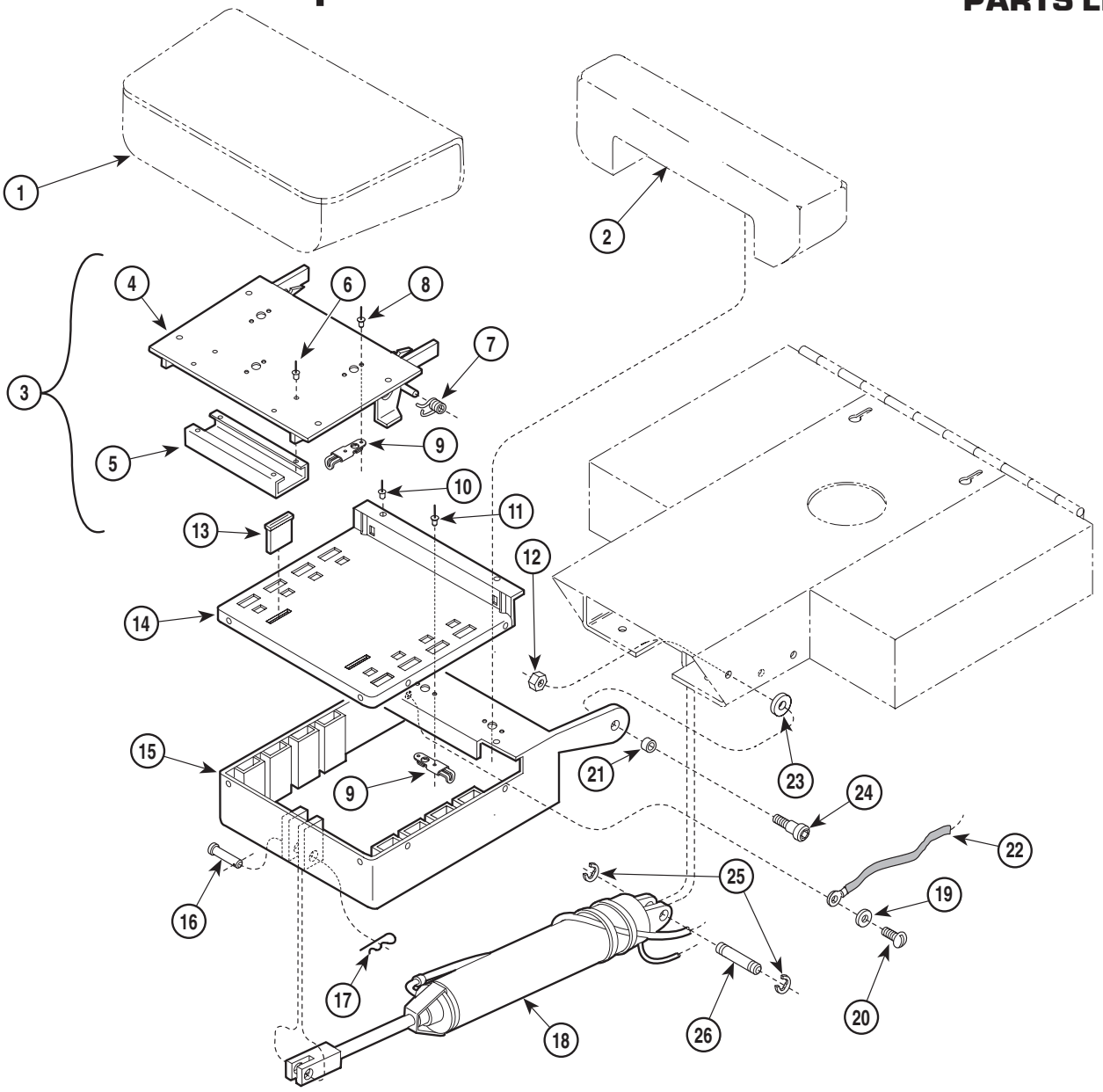
Footboard Components



MA247200

Used on units with Serial Number FS-1108 thru Present

Item	Part No.	Description	Qty.
1		Upholstered Foot Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2		Upholstered Leg Rest (Refer to "Upholstery Set" Elsewhere)	Ref
3	029-1646-00	Footrest Assembly (Includes Items 4 thru 9)	1
4	• 030-1113-20	• Footboard Weldment	1
5	• 050-0878-00	• Catch Channel	1
6	• 042-0010-02	• Pop Rivet	4
7	• 025-0045-01	• L.H. Spring (Shown)	1
	• 025-0045-00	• R.H. Spring (Not Shown)	1
8	• 042-0010-11	• Pop Rivet	6
9	• 016-0542-00	• Slide Latch Assembly	5
10	042-0010-04	Pop Rivet	8
11	042-0010-13	Pop Rivet	4
12	041-0375-05	Jam Nut	2
13	016-0092-00	Magnet	2
14	050-0871-00	Foot Trim	1
15	030-0886-20	Foot Extension Weldment	1
16	042-0005-03	Clevis Pin	1
17	042-0004-00	Pin Clip	1
18		Foot Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
19	045-0001-31	Lockwasher	1
20	040-0010-47	Screw	1
21	016-0076-00	Bushing	2
22	015-0082-01	Ground Braid	1
23	045-0004-00	Washer	2
24	042-0014-00	Shoulder Screw	2
25	042-0007-00	E-Ring	2
26	042-0006-01	Clevis Pin	1

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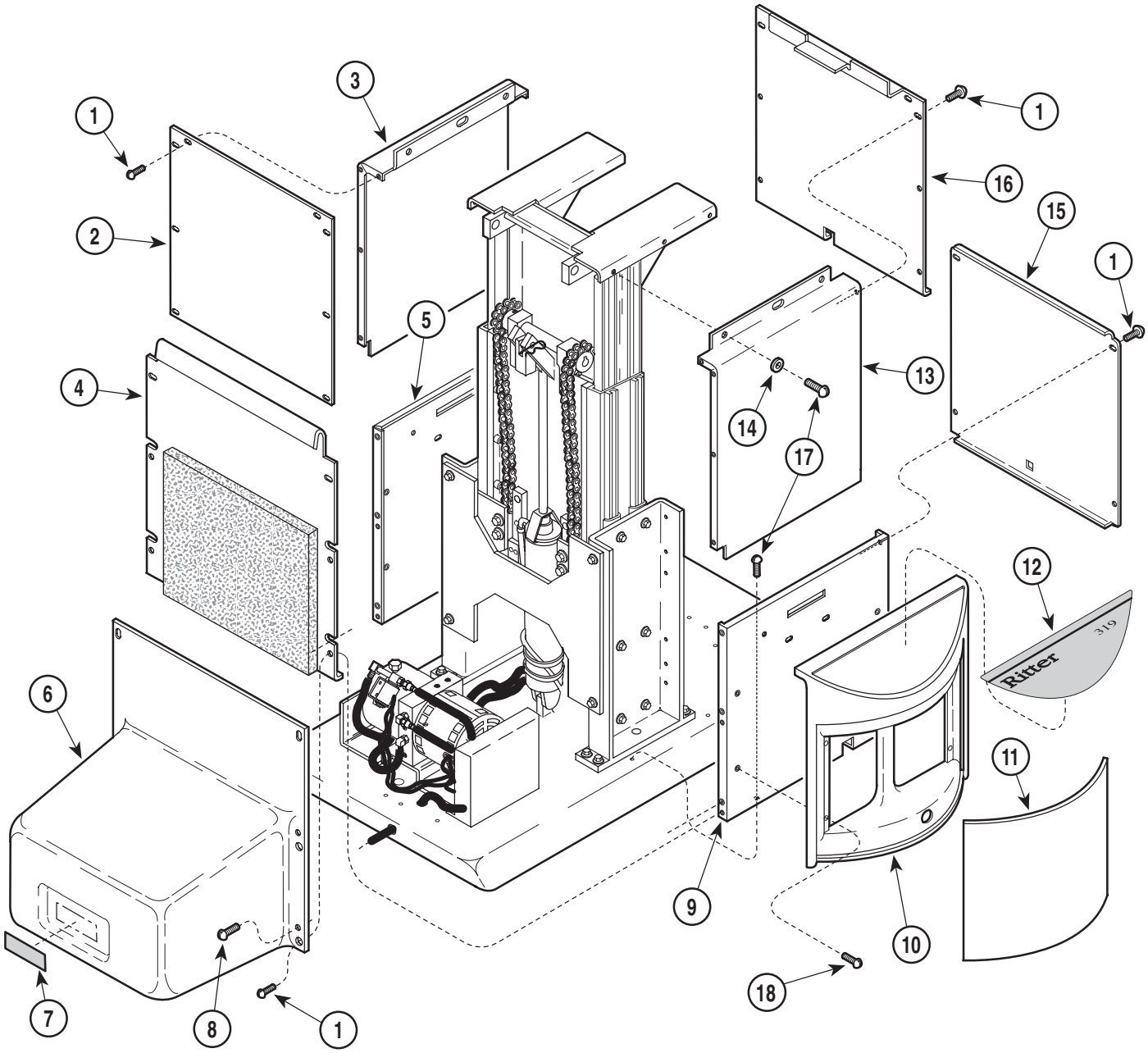
Base Covers And Enclosures



MA2612

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-2677-20	Back Inner Shroud	1
3	050-0947-21	L.H. Inner Shroud (Less Nutserts)	1
	• 042-0045-02	• Nutsert	8
4	029-1585-00	Back Outer Shroud Assembly	1
5	050-2639-21	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
6	029-1586-00	Motor Cover Assembly	1
7	061-0475-00	Caution Label	1
8	040-0010-34	Screw	6
9	050-2639-20	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
10	053-0516-00	Side Panel	2
11	050-2483-01	Side Panel Insert (Warm Grey)	2
	050-2483-02	Side Panel Insert (Slate Grey)	2
	050-2483-03	Side Panel Insert (Rosedust)	2
	050-2483-04	Side Panel Insert (Larkspur Blue)	2
	050-2483-05	Side Panel Insert (Victorian Teal)	2
	050-2483-99	Side Panel Insert (Special Colors)	2
12	061-0435-00	Nameplate Decal	2
13	050-0947-20	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
14	045-0001-15	Washer	6
15	050-2436-20	Front Outer Shroud	1
16	050-2455-20	Front Inner Shroud	1
17	040-0010-47	Screw	12
18	040-0010-23	Screw	8

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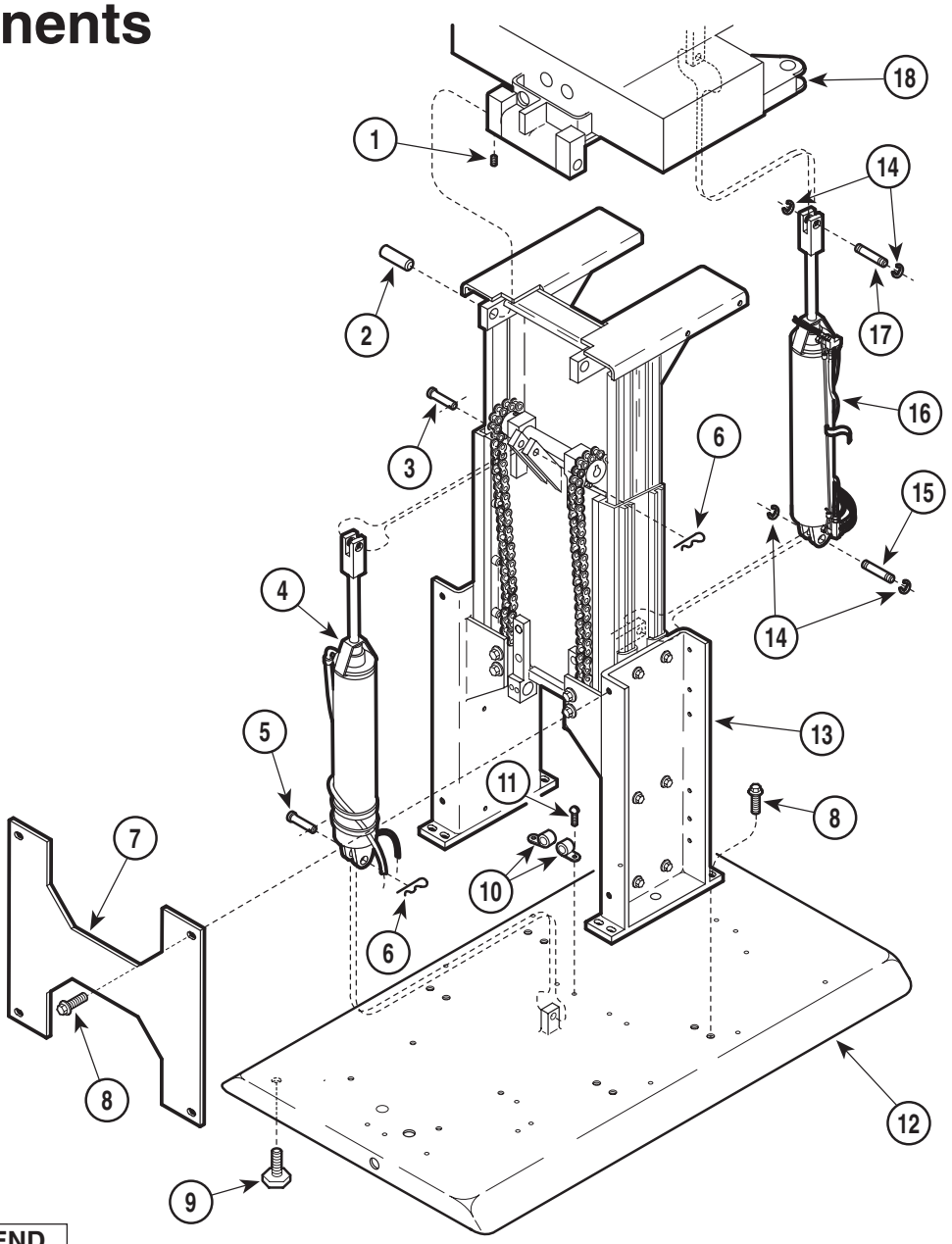
Base Mechanical Components



TORQUE LEGEND	
ITEM #	TORQUE
1	75 - 85 IN-LBS (8.5 - 9.6 N•M)

MA2242

Item	Part No.	Description	Qty.
1	040-0250-04	Set Screw	4
2	057-0027-00	Tilt Pivot Pin	2
3	042-0005-03	Clevis Pin	1
4		Base Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
5	042-0005-01	Clevis Pin	1
6	042-0004-00	Hitch Pin Clip	2
7	050-1475-20	Brace	1
8	040-0375-00	Screw	12
9	016-0001-00	Leveling Screw	4
10	015-0001-00	Wire Clip	2
11	040-0010-04	Screw	2
12	030-1057-00	Stationary Base Weldment {Less Nutserts})	1
	• 042-0045-01	• Nutsert	2
13		Base Slide Assembly (Refer to Breakdown Elsewhere)	Ref
14	042-0007-00	E-Ring	4
15	042-0006-01	Clevis Pin	1
16		Tilt Cylinder Assembly (Refer to "Hydraulic System" Elsewhere)	Ref
17	042-0006-00	Clevis Pin	1
18		Seat Weldment (Refer to "Seat Components" Elsewhere)	Ref

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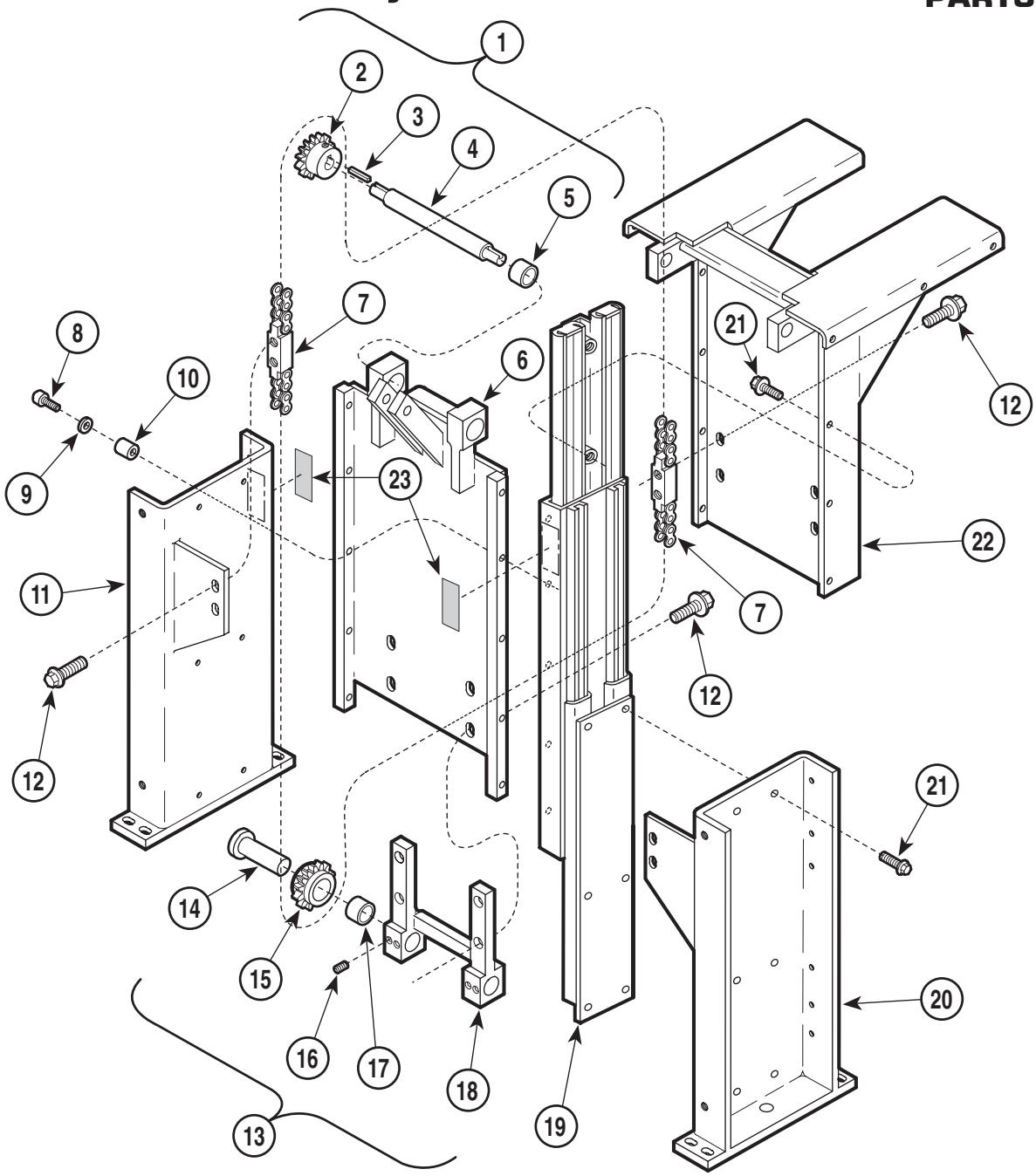
Base Slide Assembly



MA2241

Item	Part No.	Description	Qty.
	029-0069-01	Base Slide Assembly (Includes Items 1 thru 22)	1
1	• 029-0072-03	• Middle Member Assembly (Includes Items 2 thru 6)	1
2	• • 016-0151-00	• • Sprocket (Includes Set Screw)	2
3	• • 042-0008-00	• • Machine Key	2
4	• • 057-0105-00	• • Axle	1
5	• • 016-0149-00	• • Bearing	2
6	• • 030-0094-20	• • Middle Member Weldment	1
7	• 029-0070-00	• Chain Assembly	2
8	• 040-0008-30	• Screw	10
9	• 045-0001-10	• Lockwasher	10
10	• 052-0015-00	• Spacer	10
11	• 030-0092-21	• L.H. Support Channel Weldment	1
12	• 040-0375-00	• Screw	12
13	• 029-0071-03	• Idler Adjuster Assembly (Includes Items 14 thru 18)	1
14	• • 030-0274-00	• • Journal Weldment	1
15	• • 016-0152-00	• • Sprocket	2
16	• • 040-0250-04	• • Set Screw	4
17	• • 016-0149-00	• • Bearing	2
18	• • 030-0273-20	• • Idler Adjuster Weldment	1
19	• 016-0234-01	• L.H. Base Slide (Opposite)	1
	• 016-0234-00	• R.H. Base Slide (Shown)	1
20	• 030-0092-20	• R.H. Support Channel Weldment	1
21	• 040-0250-88	• Screw	20
22	• 030-0917-20	• Inner Member Weldment	1
23	061-0045-00	Cover Caution Label	2

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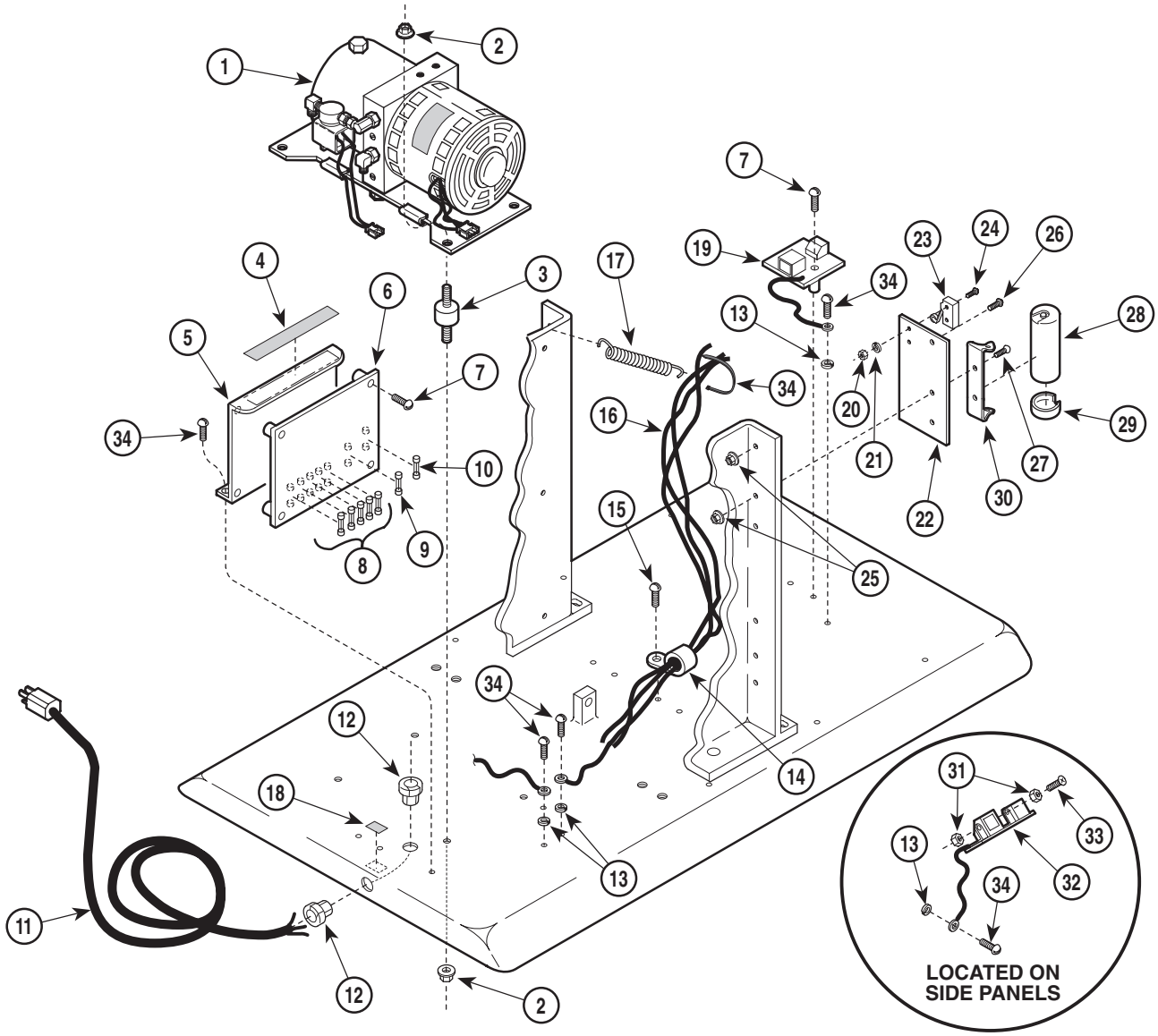
Base Electrical Components



MA2244

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to Breakdown Elsewhere)	1
2	041-0250-13	Nut	8
3	053-0051-00	Motor Mount	4
4	061-0438-00	Fuse Label	1
5	050-2454-20	P.C. Control Mount Panel	1
6	015-0833-00	P.C. Control Board	1
7	040-0006-50	Screw	6
8	015-0346-17	Fuse (1.6 amp. / 250 V.)	5
9	015-0346-13	Fuse (8 amp. / 125 V.)	2
10	015-0346-14	Fuse (.125 amp. / 250 V.)	1
11	002-0084-00	Power Cord Set Kit	1
12	015-0002-01	Strain Relief Bushing	2
13	045-0001-31	Lockwasher	5
14	015-0014-01	Wire Clip	1
15	040-0010-04	Screw	1
16		Wire Harness Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
17	025-0025-00	Spring	1
18	061-0295-00	Cord Tag	1
19	015-0853-00	Foot Inlet P.C. Board	1
20	041-0004-00	Nut	2
21	045-0001-43	Lockwasher	2
22	050-0952-20	Auto Return Bracket	1
23	015-0896-00	Limit Switch	1
24	040-0004-07	Screw	2
25	041-0010-02	Nut	5
26	040-0010-12	Screw	1
27	040-0010-28	Screw	4
28	002-0044-00	Capacitor Kit (Includes Item 29)	2
	• 015-0437-07	• Capacitor (124/149 MFD {250V})	2
29	• 015-0413-01	• Capacitor Cap	2
30	015-0412-02	Capacitor Mounting Bracket	2
31	041-0006-01	Nut	8
32	015-0836-00	Hand Inlet P.C. Board	2
33	040-0006-23	Screw	4
34	040-0010-47	Screw	7
35	015-0017-00	Cable Tie (7.5")	1
36	015-0016-00	Cable Tie (11.5" {Not Shown})	9
37	015-0013-02	Cable Tie (3.87" {Not Shown})	15
38	015-0013-00	Cable Tie (7.25" {Not Shown})	6

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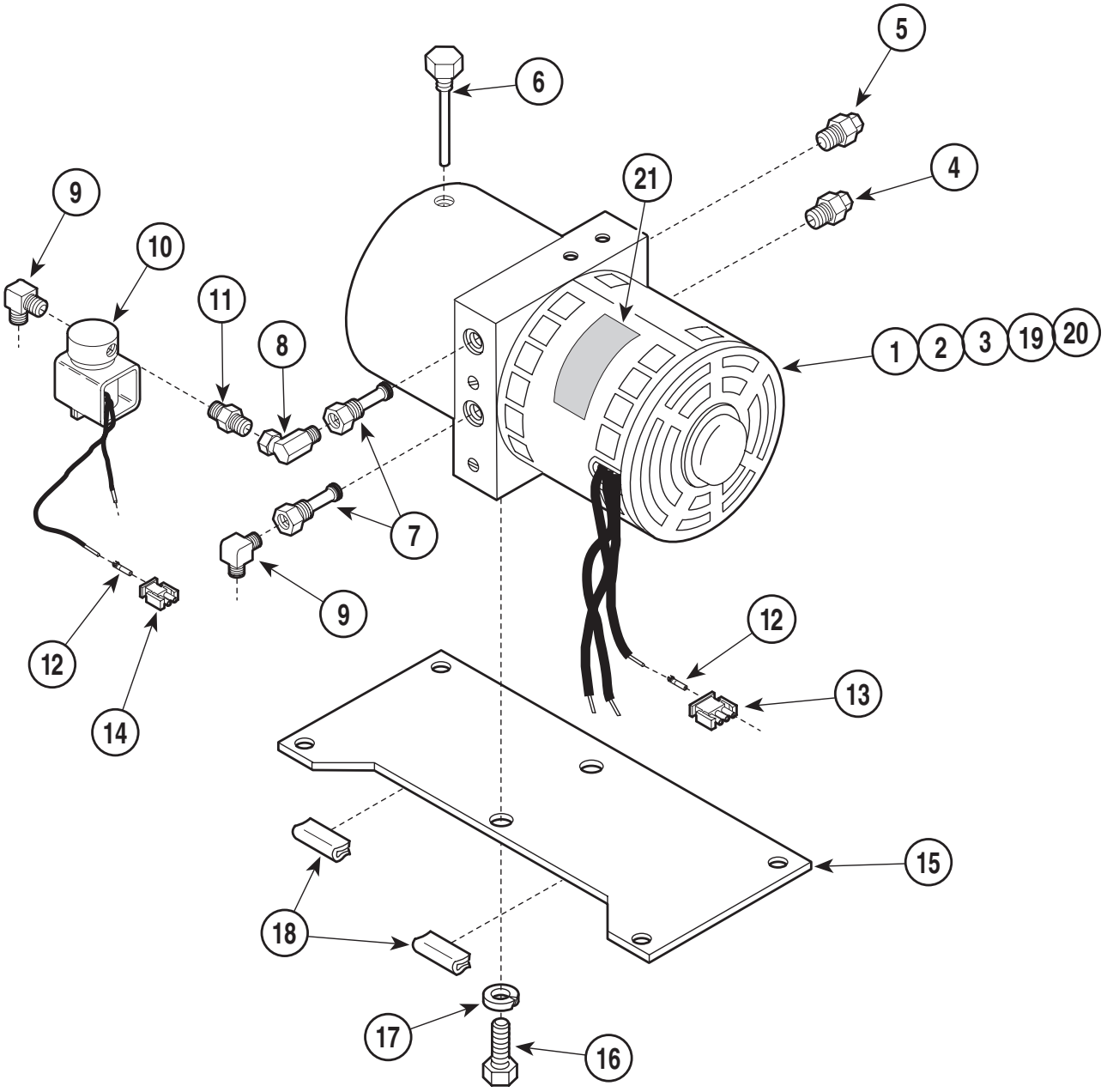
Motor / Pump Components



MA531200

Item	Part No.	Description	Qty.
	029-1695-00	Motor / Pump Assembly (Includes Items 1 thru 21)	1
1	• 002-0494-00	• Motor / Pump Assembly (Includes Items 4, 5, 6, 7, 8, 9, 12 &13)	1
2	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1
3	• 014-0262-02	• Reservoir O-Ring Seal (Not Shown)	1
4	• 014-0248-00	• Relief Valve (Low Pressure)	1
5	• 014-0249-00	• Relief Valve (High Pressure)	1
6	• 014-0262-01	• Filler Cap	1
7	• 014-0168-00	• Shuttle Valve	2
8	• 014-0260-00	• Elbow	1
9	• 014-0096-00	• Elbow	2
10	• 002-0493-00	• Anticavitation Solenoid Valve (Includes Items 11 & 13)	1
11	• 014-0045-00	• Connector	1
12	• 015-0395-04	• Pin Terminal	5
13	• 015-0590-02	• Plug (3 Wire)	1
14	• 015-0590-01	• Plug (2 Wire)	1
15	• 050-2662-00	• Motor Base	1
16	• 040-0500-02	• Screw	2
17	• 045-0001-33	• Lockwasher	2
18	• 016-0360-00	• Trim Lock (Specify Length - 2")	2
19	• 014-0020-00	• Mineral Oil	AR
20	• 014-0007-00	• Pipe Sealant	AR
21	061-0135-00	Motor Caution Label	1

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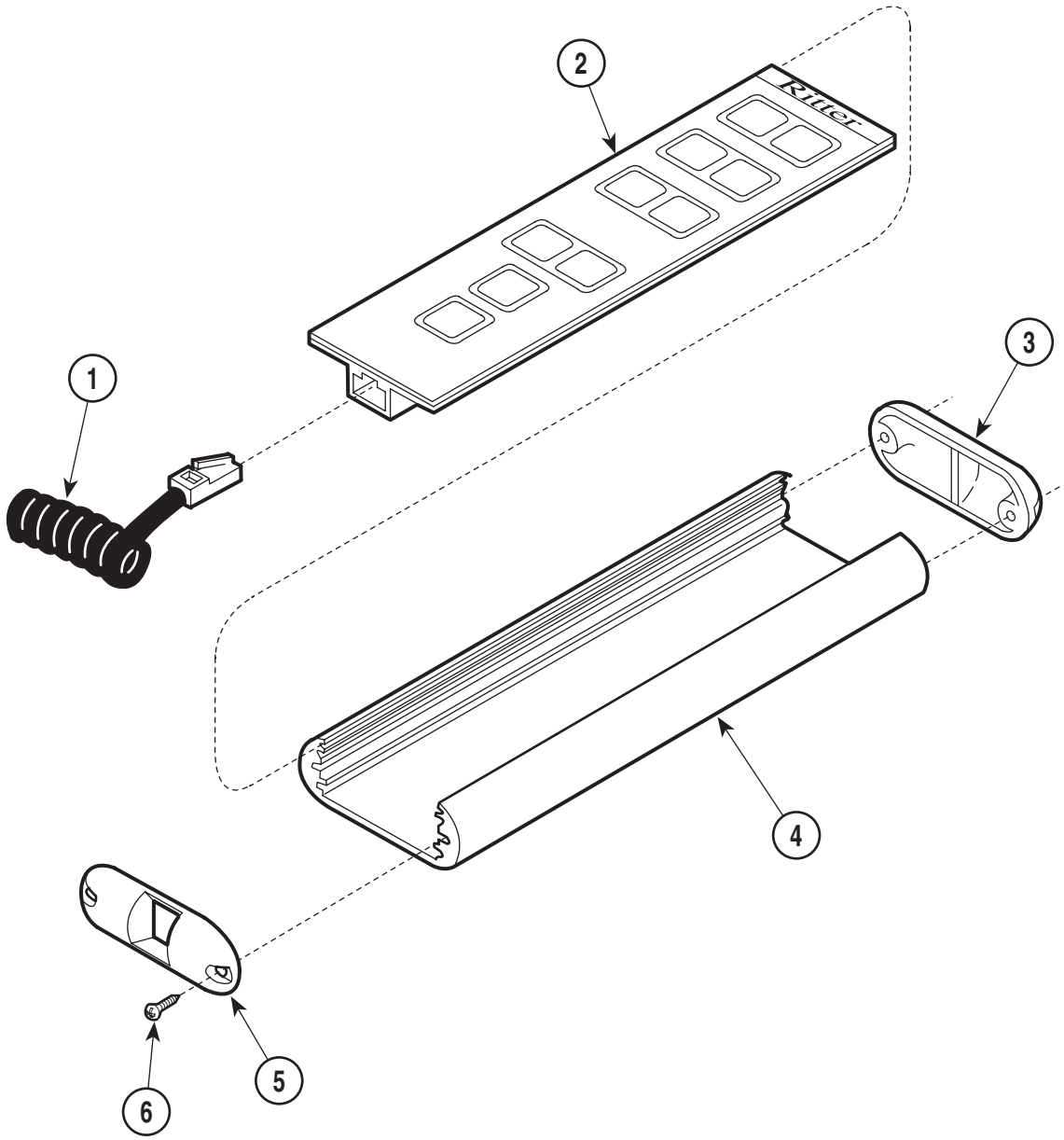
Hand Control



MA2235

Item	Part No.	Description	Qty.
	029-1578-00	Hand Control Assembly (Includes Items 1 thru 6)	1
1	• 015-0839-00	• Modular Coil Cord	1
2	• 015-0862-00	• Hand Control Panel	1
3	• 053-0412-00	• Top End Cap	1
4	• 021-0016-03	• Hand Control Tube	1
5	• 053-0526-00	• Bottom End Cap	1
6	• 040-0006-08	• Screw	4

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FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- **ALL BLOCKED AREAS MUST BE COMPLETED.**
- **USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).**

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: _____ **P.O. #:** _____ **DATE:** _____

NAME: _____ **SHIP TO:** _____

ADDRESS: _____

CITY, ST.: _____

CONTACT: _____

PHONE: _____

☐ **NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.**

☐ **EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:30 P.M. E.S.T).**

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: _____

METHOD OF SHIPMENT **OTHER** _____

UPS	FED EX
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.
☐ NEXT DAY P.M.	☐ NEXT DAY P.M.
☐ 2ND DAY	☐ 2ND DAY
☐ GROUND	☐ ECONOMY

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER

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